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Ministry
of the
Environment
Ontario

GENERAL INFORMATION

CERTIFICATES OF APPROVAL (AIR)

SECTION 9

ENVIRONMENTAL PROTECTION ACT

R.S.O. 1990, CHAPTER E-19

APPROVALS BRANCH

AUGUST 1992

CONTENTS OF THIS DOCUMENT ARE SUBJECT
TO CHANGE WITHOUT FURTHER NOTICE

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NOTE TO THE READER

APPENDIX 1. OF THIS DOCUMENT DEFINES TERMS THAT ARE USED THROUGHOUT THIS DOCUMENT.

CERTIFICATES OF APPROVAL (AIR)
SECTION 9
ENVIRONMENTAL PROTECTION ACT
R.S.O. 1990, CHAPTER 19

FOREWORD

The Ministry's approval program is based on a legislative requirement to obtain a certificate of approval.

The review of applications for certificates encourages applicants to make every effort to plan the construction and operation of new or alteration of existing sources of contaminants, in such a way that those sources are likely to comply with the *Act*, any applicable regulations, Interim Standards, Policies and/or Guidelines used by the Ministry. The approval process often results in negotiations to change some aspects of the proposal or to include certain conditions on the certificate of approval, in order to provide a greater assurance of protection of the environment prior to having the facility constructed and operated.

Every industry or person who plans to construct, modify or operate a facility which discharges contaminants has a responsibility to obtain and maintain full knowledge and understanding of the current environmental legislation, which may affect his/her activities. Therefore, the reader is encouraged to obtain copies of the *Environmental Protection Act* ("Act") and the regulations under the *Act* as well as to keep up to date with any legislative changes. **If any questions arise on legal issues, the reader should seek advise from a legal counsel.**

This document provides general information on the approval requirements and procedures relating to air emissions as they were at the time of printing. The Approvals Branch also has a separate document "**GUIDE FOR COMPLETING APPLICATIONS FOR CERTIFICATES OF APPROVAL (AIR)**", which the readers should review prior to submitting an application to the Ministry. This document and the detailed guide are available from:

Approvals Branch
Industrial Approvals Section
250 Davisville Avenue
Toronto, Ontario
M4S 1H2.
Telephone (416) 440-3718

1 WHAT REQUIRES APPROVAL

Section 9 of the *Act* states that an approval must be obtained for **construction, alteration, extension or replacement** of any plant, structure, equipment etc. that may discharge a contaminant into the natural environment , or **alteration of a process or rate of discharge** (See Appendix 2 for excerpts from the *Act*).

Therefore, the person who plans to construct or install must first determine, if the process, equipment and/or operation may generate contaminants, such as inert particulate, pure or combined metals, acid mists, nitrogen and sulphur oxides, other products of combustion, toxic organic compounds, volatile organic compounds, other organic or inorganic substances or compounds, noise or vibration.

Noise and/or vibration can always be suspected of being discharged, if the structure includes large air/gas handling equipment, such as fans, blowers, pneumatic conveyors, cooling towers and compressors. Other particularly noisy pieces of equipment are diesel engines, stamping presses and rock crushers.

It is noted that the generation of other contaminants may result from physical/mechanical action (grinding, screening, agitation, handling) or evaporation of raw materials, both of which can cause a discharge of one or more of the raw material components. The chemical composition of contaminants may also differ from the actual raw material composition as the contaminants may be formed during the process. For instance, chemical reactions may occur between two or more raw materials or oxidation may take place, as in combustion of fuel or waste. Of particular concern are products of incomplete combustion, since many of these chemicals are highly toxic.

If a contaminant may be generated, the proponent will then have to determine if the contaminant may be discharged into the natural environment during normal operating conditions. Generally, if a process vessel is equipped with ductwork and vented into the atmosphere or if an open vessel has a fume collection hood ducted into the atmosphere, a discharge of a contaminant into the natural environment can be expected.[1] In these circumstances, a certificate of approval is required under section 9 of the Act, unless this obligation is removed by a legislative exemption or regulation.

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[1] Persons who plan to discharge within a workplace should consult the Ontario Ministry of Labour.

In the case of a modification to previously approved equipment, structure etc., the necessity of obtaining a new approval depends on whether the modification may, in some way, alter the nature of contaminants discharged or the rate or manner of the discharge from what was previously approved.

Proponents must also keep in mind that installation and use of pollution control equipment do not eliminate discharges of contaminants. The most efficient devices used to control emissions may have an efficiency of 99.9 (+) percent, but they are never 100 percent efficient. Accordingly, even highly efficient devices can require certificates under section 9 of the *Act*. Appendix 3 provides some assistance in determining when a certificate is required.

It is noted that in addition to an approval under section 9 of the *Act*, a facility may require several other approvals. For instance, a waste disposal facility will require an approval under section 9 for contaminant discharges into the natural environment as well as an approval under Part V of the *Act* for waste handling and disposal. Further, a wet scrubber may have a wastewater discharge into a natural watercourse directly or via a treatment plant. Therefore, approvals may have to be considered under section 9 of the *Act* as well as under section 53 of the *Ontario Water Resources Act*. **It is the responsibility of the proponents to be aware of the various approvals which may be required.**

The Approvals Branch may be contacted for further information on the approval requirements under Part V of the *Act* and section 53 of the *Ontario Water Resources Act*.

2 LEGISLATIVE EXEMPTIONS

An owner or operator is not required to obtain a certificate for certain activities and types of equipment, which are specifically exempted by Subsection 9(3) of the *Act*, section 3 of Regulation 308 enacted under the *Act*, or Ontario Regulation 77/92 enacted under the *Act*.

The current exemptions are listed below together with typical examples:

2.1 Subsection 9(3) of the *Act*

2.1.1 Routine maintenance.

EXAMPLE: Replacement of broken filter bags with the same type of bags.

2.1.2 Equipment for the combustion of fuel, other than waste incinerators, in buildings or structures designed for the housing of not more than three families.

EXAMPLE: No. 2 oil fired boiler in a detached house, a duplex or a triplex.

2.1.3 Any equipment, apparatus, mechanism or thing in or used in connection with a building or structure designed for the housing of not more than three families where the only contaminant produced by such equipment, apparatus, mechanism or thing is sound or vibration.

EXAMPLE: Air conditioning equipment in a detached house, a duplex or a triplex.

2.1.4 Any plant, structure, equipment, apparatus, mechanism or thing that may be a source of contaminant of a class exempted therefrom by the regulations.

EXAMPLE: The sources of contaminants exempted by section 3 of Regulation 308.

2.1.5 Any plant, structure, equipment, apparatus, mechanism or thing used in agriculture.

EXAMPLE: Combustion equipment used to heat a greenhouse.

2.1.6 Any motor or motor vehicle that is subject to the provisions of Part III.

EXAMPLE: A vehicle equipped with an internal combustion engine; automobile.

2.2 Section 3, Ontario Regulation 308

2.2.1 Fuel burning equipment used for the purpose of comfort heating in a building burning natural gas or No. 2 oil at a rate less that 1.5 million British thermal units per hour.

EXAMPLE: Natural gas or no. 2 oil fired unit heaters, if the total heat input for all natural gas or no.2 oil fired equipment located in the same building as the proposed unit(s) is less than 1.58 million kilojoules per hour.

2.2.2 Equipment for the preparation of food in a domestic residence.

EXAMPLE: A range complete with a fume collection hood and an exhaust to the atmosphere, if the range is used for normal home cooking of meals.

2.2.3 Fuel burning equipment used solely for the purpose of comfort heating in a dwelling used for the housing of not more than three families.

EXAMPLE: Combustion equipment, except internal combustion engines, which provides comfort heat in a detached house, a duplex or a triplex.

2.2.4 Equipment for construction or maintenance of a highway while the equipment is being used on the highway.

EXAMPLE: Asphalt paving equipment when used on a highway.

2.2.5 A source of visible light radiation intended for the purpose of advertising or illumination.

EXAMPLE: Electric billboard.

2.3 Ontario Regulation 77/92

2.3.1 Section 1 states, 'In this Regulation, "ground source heat pump system" means a building heating and cooling system that uses a liquid, other than methanol, as a medium to exchange heat with the ground or ground water.'

2.3.2 Section 2 states, "Ground source heat pump systems are exempted from Section 9 of the Act."

EXAMPLE: All closed loop ground source heat pumps except these charged with methanol.

3 WHO SHOULD APPLY FOR APPROVAL

Generally the person responsible applies for a certificate. Examples of person responsible include:

3.1 the company which owns the equipment and/or the manufacturing process;

3.2 the company which operates the equipment on behalf of the owner;

3.3 any person who rents portable equipment, such as crushing equipment or asbestos removal equipment for the purpose of carrying out a project;

3.4 any person who may have charge, management or control over how the equipment or process is maintained and operated, and what kind and amounts of contaminants are discharged from the equipment or process.

There may be more than one person responsible in a situation and therefore, more than one can apply for a certificate. If this occurs, the certificate will be issued to all persons responsible. On the other hand, individual circumstances can indicate who should apply for a certificate. For example, a written contract between an owner and an operator may include specific statements regarding the responsibilities of the parties in relation to control of day to day operations. Therefore, the contract may determine the person(s) responsible and therefore, who should apply.

With short term rentals of portable equipment, the approval is usually issued only to the owner, who is responsible for maintaining the equipment in proper working condition. In these cases, the approval often contains a condition which requires the owner to enter into a legally enforceable agreement with the person who rents the equipment. This agreement requires the renting person to operate the equipment in a manner which is satisfactory to the Director. On the other hand, in the case of long term rentals, it is more likely that both the owner and the operator are named on the certificate.

Also, a stationary facility may be jointly owned by one or more persons, municipalities or companies, but none of the owners operate the facility. The owners may affect the environmental impact of the facility, however, by directing the operating company. For instance, two companies may fund, establish and control a hazardous waste incineration facility, but neither of the two companies have experience in operating such a facility. Therefore, the owners may enter into a contract with a third company, which has experience in incinerator operation. In this case, the certificate should be issued to all owners as well as the operating company.

Detailed information on how to submit an application for a certificate is available in "**GUIDE FOR COMPLETING APPLICATIONS FOR CERTIFICATES OF APPROVAL (AIR)**, Section 9, Environmental Protection Act, R.S.O. 1990, Ministry of the Environment, Approvals Branch, August 1992".

It is important to note that, for the purposes of issuing Directors' orders or prosecutions, the Ministry is not bound by the contractual relationships or informal understandings between persons. Accordingly, the Ministry can take action against a person whether or not that person is named on the certificate of approval, and regardless of private arrangements made between persons.

4 TIMING OF SUBMISSION OF APPLICATION FOR APPROVAL

Section 9 of the *Act* requires that the activities of construction, alteration, extension, or replacement be carried out in accordance with a certificate. Therefore, the person responsible must receive a certificate prior to starting those activities.

If a proposal which requires approval includes components or structures that will not emit a contaminant when the project is completed and is operating, the person responsible may proceed with the construction activities relating to those components or structures prior to receiving an approval. For instance, ground preparations may be made, building foundations may be poured and pipe racks may be erected. **It is emphasized, however, that if the review of the proposal results in a refusal to issue a certificate, the proponent is responsible for all costs incurred due to the activities.**

Further, if an activity which requires approval has taken place without an approval, the owner, operator and others may be prosecuted for violation of section 9(1). It should also be noted that using or operating the plant, structure etc. without an approval, may lead to a prosecution for violating section 9(7) of the *Act*.

It is noted that even though persons responsible may be prosecuted for certain activities of construction, alteration, extension or replacement which violate section 9 of the *Act*, the Director may still issue a certificate for the facilities, but only if those activities took place after June 29, 1988. Approval subsequent to construction was made possible by the passing of Bill 148/88 on June 29, 1988. Therefore, the Director will not issue an approval for facilities which were constructed, altered, extended or replaced prior to that date.

It is emphasized that everyone has the responsibility to comply with section 14 of the *Act* at all times. In other words, discharging a contaminant, or causing or permitting the discharge of a contaminant into the natural environment may result in a prosecution, regardless of whether a certificate is required and whether or not it has been obtained.

5 CRITERIA FOR APPROVAL

The Director has the authority to issue a certificate, if the proposal complies with the *Act* and all regulations enacted under the *Act*, as well as all Policies and Guidelines, including all technical publications in the Model Municipal Noise Control By-Law, set or adopted by the Ministry.

5.1 COMPLIANCE WITH THE *Act*

All applicants should familiarize themselves with the *Act* and, more specifically, section 6 (prohibits emissions in excess of levels prescribed by the regulations) and section 14 (prohibits discharge of a contaminant that causes or is likely to cause an adverse effect). The above sections are quoted in full in Appendix 2.

Some examples of adverse effects which violate section 14 of the *Act*:

5.1.1 odour which causes a loss of enjoyment of outdoor activities, even the smell of doughnuts can be disturbing in some circumstances;

5.1.2 noise which may disturb sleep;

5.1.3 vibration which causes damage to building foundations;

5.1.4 paint deposition on parked cars;

5.1.5 damage to vegetation.

5.2 REGULATION 308 (General - Air Pollution)

5.2.1 POINT OF IMPINGEMENT STANDARDS

The current general air pollution control legislation in Ontario is based on a "point of impingement" concept, whereby the concentration of any contaminant at a point of impingement must not exceed a maximum allowable concentration (section 5 of Regulation 308). In-stack concentration or emission rate limits in connection with selected sources are subject to specific regulations, policies or guidelines.

The allowable point of impingement concentrations are either half-hour average standards set out in Schedule 1 of Regulation 308 or interim standards established by the Ministry based on data concerning toxicicity, carcinogenicity and environmental effects.

When staff of the Phytotoxicology - Environmental Effects Assessment Unit, Air Resources Branch of the Ministry consider new environmental standards, they base their evaluation on the following Limiting Effects: health, vegetation damage, odour, corrosion, ozone depletion, soiling and visibility. A new point of impingement concentration limit is a concentration at which no effects are expected to occur in any of the effect categories during a continuous long-term exposure to the contaminant at the concentration limit.

The Ministry publishes all updated standards, interim standards and ambient air quality criteria in a document entitled "Summary of Point Impingement Standards, Ambient Air Quality Criteria (AAQCs), and Approvals Screening Levels (ASLs)". The current Summary document is included as Appendix 10. Applicants are encouraged to contact the Air Resources Branch of the Ministry (See Section 11 of this document) for the most recent publication, since the interim standards are continuously increasing in number. Further, some values for existing standards or interim standards may be changed as additional data on the contaminants become available.

5.2.2 MISCELLANEOUS PROHIBITIONS

The following prohibitions in Regulation 308 are also considered during the review of applications and drafting of certificates:

5.2.2.1 emissions causing certain adverse effects: section 6;

5.2.2.2 visible emissions: section 8;

5.2.2.3 burning of fuel or waste in equipment, which was not designed to burn that fuel or waste: section 10(1);

5.2.2.4 burning of fuel or waste at a greater rate than the rate for which the equipment was designed: section 10(2);

5.2.2.5 discharge of combustion gases from incinerators, if the concentration of organic matter in those combustion gases is in excess of 100 parts per million by volume: section 12(2).

5.2.3 REVIEW OF APPLICATIONS

Detailed information on the review of applications is available in Appendix 4.

5.3 OTHER REGULATIONS UNDER THE *ACT*

Appendix 5 lists various other regulations enacted under the *Act*. Some of these regulations include specific requirements that will be addressed during the review of an application for a certificate.

The following are some specific requirements considered during application review:

5.3.1 minimum particulate collection efficiency for all ferrous foundry operations and maximum particulate emission rate for ferrous foundry cupolas (O. Reg. 295);

5.3.2 maximum sulphur content of fuels used or sold in the Municipality of Metropolitan Toronto (O. Reg. 312);

5.3.3 maximum annual sulphur dioxide emission rate from Inco Sudbury Smelter Complex, Falconbridge Nickel Centre Smelter Complex, Algoma Steel Wawa Sinter Operation, and maximum annual sulphur dioxide and nitrogen oxide emission rates from fossil fuel fired electric generating stations of Ontario Hydro (O. Reg. 660/85, 661/85, 663/85, 662/85);

5.3.4 maximum sulphur content of fuels used in boilers (O. Reg. 16/86);

5.3.5 prohibitions to manufacture products that contain or are made using ozone depleting substances (O. Reg. 394/89, 518/90, 519/90, 476/91).

It is important to note that there must be compliance with all provisions of the *Act* and Regulation 308 in addition to any specific regulations, as applicable.

5.4 POLICIES AND GUIDELINES

As a further means of promoting compliance with the *Act* and regulations, the Ministry, from time to time, develops documents such as policies and guidelines. At the time of this printing, there exist a number of policies and one guideline which provide specific requirements for combustion conditions and air pollution control requirements in selected incineration facilities, including wood fired combustors. These documents are listed in Appendix 6.

5.5 MODEL MUNICIPAL NOISE CONTROL BY-LAW

The Approvals Branch of the Ministry has prepared a document, entitled "Model Municipal Noise Control By-Law, Final Report, August 1978". It refers to the technical publications which set sound and vibration limits, as well as the requirements for sound and vibration measurement instruments and techniques. The model by-law also outlines the type of information needed for the Ministry to assess sources of sound and vibration. Appendix 7 lists the technical publications contained in the Model Municipal Noise Control By-Law.

5.6 BEYOND REGULATORY REQUIREMENTS

It is suggested that plans for construction of new sources or modifications to existing sources commence by considering raw materials, process equipment, processes and operating conditions that minimize the potential for all discharges to the natural environment. For instance, use of less volatile raw materials, lower process temperatures, floating roof tanks and smaller liquid surface areas can reduce evaporative losses. Following good housekeeping practices and maintenance procedures is always advisable.

Proponents should also consider at the planning stage the potential transfer of pollutants from one media to another. For instance, emissions to the atmosphere may be controlled by air pollution control equipment, such as a baghouse or a wet scrubber, however, the collected particulate matter or scrubber effluent may contain toxic substances which may contaminate land, surface water or ground water, if not properly managed. Therefore, proponents are encouraged to select processes, process equipment and raw materials which minimize or prevent transfer of pollutants by minimizing or eliminating contaminants and discharges into any part of the natural environment.

Particular attention should be paid to discharges of carcinogenic, toxic, hazardous and/or odorous raw materials. Raw material substitution should be considered whenever any of the potential emissions are carcinogenic and/or when the point of impingement concentration standard/interim standard for the contaminant is low. If raw material substitution is not possible, the most efficient control technologies should be chosen in order to reduce discharges to the natural environment to as low a level as possible.

The development of voluntary pollution prevention programs is encouraged. Nevertheless, increasing knowledge of environmental hazards, and in particular the uncertainty of long term effects, will continue to force the Director to tighten the requirements and likely at a fast pace.

It should be noted that the Director is given broad powers under section 9(4) of the *Act* to issue an approval on terms he considers necessary to ensure compliance with the *Act* or regulations, or to prevent or alleviate an adverse effect. Accordingly, if the Director considers it necessary, he may impose conditions which are more stringent than the current regulatory standards.

6 APPROVAL DOCUMENTS

A certificate is a written document, which:

6.1 Identifies the person(s) responsible;

6.2 identifies the location of the equipment and process;

6.3 describes the equipment and process;

6.4 may place requirements on the design, use, operation and maintenance of the equipment and process;

6.5 states that the equipment and process are approved under section 9; and

6.6 is signed by a Director under section 9 of the *Act*.

For administrative purposes, all approval documents are numbered, and therefore the Approvals Branch uses one of the titles and formats outlined in Appendix 8.

7 REFUSAL AND REVOCATION

7.1 REFUSAL OF APPLICATION (Section 9(4) of the *Act*)

If the review of an application for a certificate reveals that the proposal, if constructed, would probably not comply with the policies, guidelines and all regulations enacted under the *Act* and/or could cause an adverse effect, the Director may refuse to issue an approval under section 9(4) of the *Act*.

When the Director refuses to issue a certificate, he will do so by issuing a notice to the applicant. The notice will state the reason(s) for the refusal, and will also give instructions on how to appeal the refusal.

It should be noted that a refusal is issued after the applicant indicates that the proposal will not, or cannot be altered in a manner which will comply with legislative and policy requirements. A refusal may also be issued if the applicant fails to provide necessary information within a reasonable time in order for the Ministry staff to complete the assessment of the application.

7.2 REVOCATION OF A CERTIFICATE (Section 9(5) of the *Act*)

In accordance with Section 9(5) of the *Act*, the Director may, at any time, revoke a certificate if he considers it necessary to prevent an adverse effect or to affect compliance with the *Act* and the regulations.

When the Director revokes a certificate, he issues a notice to the applicant or the person to whom the certificate is issued (hereafter "applicant"). The notice will state the reasons for the revocation, and will also give instructions on how to appeal the revocation.

8 APPEAL OF DIRECTOR'S DECISION

The *Act* provides a right of appeal in Section 139, in the event that the Director imposes terms and conditions in a certificate, refuses to issue or revokes a certificate.

The following outlines the appeal procedures:

8.1 An applicant may require a hearing by the **Board** and must do so in accordance with section 139(2) of the *Act*.

The request for a hearing must be forwarded to the Director and the Board in writing within fifteen days of the receipt of the certificate or notice issued by the Director. The request must clearly state the reasons for the appeal.

When a hearing is held, the Board may confirm, alter or revoke the decision of the Director and may substitute its opinion for the opinion of the Director in accordance with section 144(1).

8.2 An applicant, the Director, or any other party to a hearing before the Board, may appeal the Board's decision on a question of law to the **Divisional Court** in accordance with Section 144(2).

8.3 An applicant, the Director, or any other party to a hearing before the Board may appeal the Board's decision to the **Minister** on all matters other than a question of law in accordance with Section 144(3).

9 CORRECTION OF ERRORS ON APPROVAL

At times, a certificate may state a wrong location address, an incomplete company name, or there is a typographical error. It is not necessary to initiate an appeal to have the certificate corrected.

The applicant may simply write to the Director, reference the certificate number, indicate the error and suggest a corrected wording. The request for corrections will be reviewed and the applicant will receive either an Amended Certificate of Approval or a Notice of Amendment, as described in Appendix 8.

10 MODIFICATIONS AFTER APPROVAL ISSUED

At times, the plans and specifications which were submitted with the application may have to be altered after the certificate has been issued. If the modification results in changes to what originally was approved, for example, the nature of emissions, rate of discharge or dispersion of contaminants, the applicant must apply for a new certificate or a revision of the original approval. (See also examples in Appendix 3.)

Minor modifications which do not have an effect on the environmental impact of the facilities and which do not alter what originally was approved, may be made without informing Ministry staff.

It should be noted that if modifications to approved facilities are required, and the modifications are such that they would normally require approval of the Director, an applicant may proceed, in accordance with Section 9(6) of the *Act*, prior to the issuance of an approval for these modifications, but only if it is impractical to first obtain the amendment to the certificate, and even then only if:

10.1 the changes are not capable of increasing the potential for discharge of a contaminant into the natural environment; and

10.2 the applicant notifies the Director in writing of the required changes as soon as the need for the changes is discovered.

In such limited cases, an amendment could be applied for after the changes have already been made. **If the application for amendment is refused, however, the Ministry will not be responsible for the costs incurred in making the unapproved modifications, nor will the Ministry be responsible if a Director's order is issued to bring the modifications into compliance with the *Act* and regulations.**

11 CHANGE OF OWNERSHIP

If the ownership, charge management and/or control of the site, the equipment or the process changes, including a change in the operating authority, the person to whom the certificate is issued or who succeeds the person to whom the certificate is issued, must notify the Ministry of the change.

It is noted that the Ministry **will not issue a revised certificate**. The change will, however, be acknowledged by a letter signed by the Director.

12 AVAILABLE INFORMATION

1. Copies of the *Act*, and the regulations can be purchased from:

Ontario Government Book Store
Main Floor
880 Bay Street
Toronto, Ontario
M7A 1N8

(416) 326-5300 or 1-800-668-9938

2. Information regarding **Ministry policies, guidelines** and **other information** relating to the requirement for a Certificate of Approval (Air) can be obtained from:

Approvals Branch
Ministry of the Environment
250 Davisville Avenue
3rd floor
Toronto, Ontario
M4S IH2

(416) 440-3718.

3. Information from the Air Resources Branch of the Ministry can be obtained as follows:

For general consultation on regulation development, emissions and technologies, contact:

Coordinator, Regulatory Issues
Emission Technology and Regulation Development Section
Air Resources Branch
Ministry of the Environment
880 Bay Street
4th Floor
Toronto, Ontario
M5S 1Z8

(416) 326-1652.

For information on stack testing and continuous emission monitoring, contact:

Supervisor, Source Assessment and Technology
Emission Technology and Regulation Development Section
Air Resources Branch
Ministry of the Environment
880 Bay Street
4th Floor
Toronto, Ontario
M5S 1Z8

(416) 326-1651.

For a copy of "Summary of Point Of Impingement Standards, Ambient Air Quality Criteria (AAQCs) and Approvals Screening Levels (ASLs), contact:

Coordinator, Air Contaminants Evaluation
Phytotoxicology Section-Environmental Effects Assessment Unit
Air Resources Branch
Ministry of the Environment
880 Bay Street
4th Floor
Toronto, Ontario
M5S 1Z8

(416) 326-1654.

For information on dispersion modelling and copies of software for dispersion modelling, contact:

Senior Atmospheric Model Specialist
Air Quality and Meteorology Section
Air Resources Branch
Ministry of the Environment
P.O. Box 213
125 Resources Road
Rexdale, Ontario
M9W 5L1

(416) 235-5764.

4. **General information** regarding the Ministry of the Environment can be obtained from:

Public Information Centre
Ministry of the Environment
135 St. Clair Avenue West
1st Floor
Toronto, Ontario
M4V 1P5

(416) 323-4321.

APPENDIX 1.

GLOSSARY OF TERMS

1. "*Act*" means the *Environmental Protection Act*, R.S.O. 1990, Chapter E-19.

2. "**adverse effect**" means one or more of,

   a. impairment of the quality of the natural environment for any use that can be made of it,

   b. injury or damage to property or to plant or animal life,

   c. harm or material discomfort to any person,

   d. an adverse effect on the health of any person,

   e. impairment of the safety of any person ,

   f. rendering any property or plant or animal life unfit for use by man,

   g. loss of enjoyment of normal use of property, and

   h. interference with the normal conduct of business.

3. "**air**" means open air not enclosed in a building, structure, machine, chimney, stack or flue.

4. "**Board**" means the Environmental Appeal Board.

5. "**Certificate**" means a certificate of approval, including all Schedules, issued under Section 9. of the *Act*.

6. "**contaminant**" means any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination of any of them resulting directly or indirectly from human activities that may cause an adverse effect.

7. "**Director**" means the Director for the purposes of Section 9 of the *Act*.

8. "**discharge**", when used as a verb, includes add, deposit, leak or emit and, when used as a noun, includes addition, deposit, emission or leak.

9. **"District Officer"** means the District Officer in the Ministry's District Office closest to the plant, structure, equipment, operation etc. covered by a certificate or subject of an application for a certificate.

10. **"effect on the equipment/facilities"** means any potential effect upon the operation of the equipment/facilities or the characteristics, rate or manner of discharge of a contaminant from the equipment/facilities.

11. **"equipment"** includes apparatus, device, mechanism or structure.

12. **"fuel burning equipment"** includes equipment designed to burn fuel but does not include an internal combustion engine.

13. **"highway"** means highway as defined in subsection 1(1) of the *Highway Traffic Act*.

14. **"land"** means surface land not enclosed in a building, land covered by water and all subsoil, or any combination or part thereof.

15. **"Minister"** means the Minister of the Environment.

16. **"Ministry"** means the Ministry of the Environment.

17. **"natural environment"** means the air, land and water, or any combination or part thereof, of the Province of Ontario.

18. **"person"** includes a municipality and a corporation.

19. **"person responsible"** means the owner, or the person in occupation or having the charge, management or control of a source of contaminant.

20. **"point of Impingement"** means any point in the natural environment. The point of impingement for the purposes of verifying compliance with the *Act* shall be chosen as the point at which the highest concentration is expected to occur, when that concentration is calculated in accordance with the Appendix to Regulation 308 written under the *Act*, or any other method accepted by the Director.

21. **"regulations"** means the regulations made under the *Act*.

22. **"source of contaminant"** means anything that discharges any contaminant into the natural environment.

23. **"water"** means surface water and ground water, or either of them.

APPENDIX 2.

This Appendix cites selected sections and/or subsections of the *Act*.

Prohibition

6. (1) No person shall discharge into the natural environment any contaminant , and no person responsible for a source of contaminant shall permit the discharge into the natural environment of any contaminant from the source of contaminant, in an amount, concentration or level in excess of that prescribed by the regulations. R.S.O. 1980, c. 141, s. 5 (1); 1988, c. 54, s. 2.

Exception

(2) Subsection (1) does not apply to animal wastes disposed of in accordance with normal farming practices. R.S.O. 1980, c. 141, s. 5 (2),

Approval of Director

9. (1) No person shall, except under and in accordance with a certificate of approval issued by the Director,

(a) construct, alter, extend or replace any plant, structure, equipment, apparatus, mechanism or thing that may discharge or from which may be discharged a contaminant into any part of the natural environment other than water; or

(b) alter a process or rate of production with the result that a contaminant may be discharged into any part of the natural environment other than water or the rate or manner of discharge of a contaminant into any part of the natural environment other than water may be altered. 1988, c. 54, s. 5 (1).

Director may require material

(2) The Director may require an applicant for a certificate of approval under subsection (1) to submit any plans, specifications and other information to carry out and report on any tests or experiments relating to the plant, structure, equipment, apparatus, mechanism or thing or to the methods and devices to be employed to control or prevent the discharge of any contaminant into any part of the natural environment other than water and, subject to subsection (4), the Director may issue a certificate of approval. R.S.O. 1980, c. 141, s. 8 (2); 1988, c. 54, s. 5 (2).

Exceptions

(3) Subsection (1) does not apply to,

(a) routine maintenance carried out on any plant, structure, equipment, apparatus, mechanism or thing;

(b) equipment for the combustion of fuel, other than waste incinerators, in buildings or structures designed for the housing of not more than three families ;

(c) any equipment, apparatus, mechanism or thing in or used in connection with a building or structure designed for the housing of not more than three families where the only contaminant produced by such equipment, apparatus, mechanism or thing is sound or vibration

(d) any plant, structure, equipment, apparatus, mechanism or thing that may be a source of contaminant of a class exempted therefrom by the regulations ;

(e) any plant, structure, equipment, apparatus, mechanism or thing used in agriculture ;

(f) any motor or motor vehicle that is subject to the provisions of Part III. R.S.O. 1980, c. 141, s. 8 (3); 1988, c. 54, s. 5 (3),

Powers of Director

(4) The Director may refuse to issue a certificate of approval or may issue a certificate of approval on such terms and conditions as the Director considers necessary,

(a) to ensure that any construction, alteration, extension, replacement, use or operation of a plant, structure, equipment, apparatus, mechanism or thing referred to in clause (1) (a) or that any alteration of a process or rate of production referred to in clause (1) (b) will result in compliance with this *Act* and the regulations and any order or approval hereunder; or

(b) on probable grounds, to prevent or alleviate an adverse effect.

(5) The Director may,

(a) alter any terms and conditions in a certificate of approval or impose new terms and conditions ; or

(b) revoke or suspend a certificate of approval, as the Director considers necessary for the reasons set out in clause (4) (a) or (b).

Exception

(6) A person to whom the Director has issued a certificate of approval under subsection (1) may make any changes in respect of which it is impractical to first obtain an amendment to the certificate if,

(a) the changes are not capable of increasing the potential for discharge of a contaminant into the natural environment ; and

(b) the Director is notified in writing forthwith of the changes.

No use or operation without certificate of approval

(7) No person shall use or operate a plant , structure , equipment , apparatus , mechanism or thing for which a certificate of approval is required under clause (1) (a) unless the required certificate of approval has been issued and complied with 1988, c. 54, s. 5 (4):

Ministry to be notified when contamination exceeds permitted level

13. (1) Every person,

(a) who discharges into the natural environment; or

(b) who is the person responsible for a source of contaminant that discharges into the natural environment,

any contaminant in an amount, concentration or level in excess of that prescribed by the regulations shall forthwith notify the Ministry of the discharge. 1988, c. 54, s. 9.

Exception

(2) Subsection (1) does not apply to animal wastes disposed of in accordance with normal farming practices. R.S.O. 1980, c. 141, s. 12 (2).

Prohibition

14. (1) Despite any other provision of this *Act* or the regulations, no person shall discharge a contaminant or cause or permit the discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect.

Exception

(2) Subsection (1) does not apply, in respect of an adverse effect referred to in clause (a) of the definition of "adverse effect" in subsection 1.(1), to animal wastes disposed of in accordance with normal farming practices. 1988, c. 54, s. 10.

When Ministry to be notified

15. (1) Every person who discharges a contaminant or causes or permits the discharge of a contaminant into the natural environment out of the normal course of events that causes or is likely to cause an adverse effect shall forthwith notify the Ministry. 1988, c. 54, s. 11 (1).

Exception

(2) Subsection (1) does not apply to animal wastes disposed of in accordance with normal farming practices. R.S.O. 1980, c. 141, s. 14 (2).

Order or approval binds successor or assignee

19. (1) An order or approval of a court, the Minister or the Director under this *Act* is binding upon the successor or assignee of the person to whom it is directed. 1988, c. 54, s. 14 (1).

When Director refuses approval, etc.

139. (1) When the Director,

(a) refuses to give his approval of plans and specifications;

(b) requires a condition precedent to the giving of his approval;

(c) refuses to issue a certificate of approval or a provisional certificate of approval;

(d) refuses to renew a certificate of approval or a provisional certificate of approval; or

(e) suspends or revokes a certificate of approval or a provisional certificate of approval,

he shall serve notice upon the applicant or holder, as the case may be, together with written reasons therefor, and the applicant or holder may, by written notice served upon the Director and the Board within fifteen days after the service of the notice, require a hearing by the Board. R.S.O. 1980, c. 141, s. 121 (1).

(2) When the Director,

(a) refuses to issue or renew or cancels or suspends a licence or permit;

(b) imposes terms and conditions in issuing a licence or permit or certificate of approval or provisional certificate of approval;

(c) alters the terms and conditions of a certificate of approval, provisional certificate of approval, a licence or permit after it is issued; or

(d) imposes new terms and conditions to a certificate of approval,

the Director shall serve notice together with written reasons therefor upon the applicant or the person to whom the licence or permit or certificate of approval or provisional certificate of approval is issued, as the case may be, and the applicant or person may, by written notice served upon the Director and the Board within fifteen days after the service of the notice, require a hearing by the Board. R.S.O. 1980, c. 141, s. 121 (2); 1988, c. 54, s. 41 (1).

Exception

(3) Subsections (1) and (2,) do not apply with respect to a decision of the Environmental Assessment Board that is implemented by the Director in accordance with subsection 33.(4). 1988, c. 54, s. 41 (2).

142. (1) An applicant for a hearing by the Board shall state in the notice requiring the hearing,

(a) the portions of the order, direction, term, condition, suspension, revocation or licence or other form of permission in respect of which the hearing is required; and

(b) the grounds on which the applicant for the hearing intends to rely at the hearing.

Powers of Board

144. (1) A hearing by the Board shall be a new hearing and the Board may confirm , alter or revoke the action of the Director that is the subject-matter of the hearing and may by order direct the director to take such action as the Board considers the Director should take in accordance with this *Act* and the regulations, and, for such purposes, the Board may substitute its opinion for that of the Director.

Appeal to Minister

(2) Any party to a hearing before the Board under this section may appeal from its decision or order on a question of law to the Divisional Court in accordance with the rules of court. 1981 c. 49, s. 3 (1).

Appeal to Minister

(3) A party to a hearing before the Board may, within thirty days after receipt of the decision of the Board or within thirty days after final disposition of an appeal, if any, under subsection (2), appeal in writing to the Minister on any matter other than a question of law and the Minister shall confirm, alter or revoke the decision of the Board as to the matter in appeal as he considers in the public interest. R.S.O. 1980, c. 141, s. 123 (3).

Parties to hearing

145. The person requiring the hearing, the Director and any other person specified by the Board are parties to the hearing. R.S.O. 1980, c. 141 , s. 124.

Inspection by provincial officer

156. (1) For the administration of this *Act* or the regulations, a provincial officer may, without a warrant or court order, at any reasonable time and with any reasonable assistance, make inspections, including,

(a) entering any part of the natural environment to ascertain the extent, if any, to which contaminants have caused an adverse effect, the causes therefor, and how any adverse effect may be prevented , eliminated or ameliorated and the natural environment" restored ;

(b) entering any place in which the provincial officer reasonably believes can be found waste to which Part V applies;

(c) entering any place in or from which the provincial officer reasonably believes a contaminant is being, has been or may be discharged into the natural environment;

(d) entering any place that the provincial officer reasonably believes is likely to contain documents related to ,

  (i) an activity or undertaking that is, or is required to be, the subject of a permit, licence, certificate of approval, provisional certificate of approval, program approval, agreement or order under this *Act* or the regulations, or

  (ii) the discharge of a contaminant into the natural environment;

(e) entering any place that the provincial officer reasonably believes is, or is required to be, subject to or referred to in a permit, licence, approval, certificate of approval, provisional certificate of approval, program approval, agreement or order under this *Act* or the regulations;

(f) stopping any vehicle or vessel that the provincial officer reasonably believes,

  (i) is being operated in contravention of this *Act* or the regulations,

  (ii) is discharging or has discharged a contaminant that causes or is likely to cause an adverse effect,

  (iii) is or is required to be subject to or referred to in a certificate of approval, provisional certificate of approval or order under this *Act* or the regulations, or

  (iv) is being used in the commission of an offence under this *Act*;

(g) stopping any vehicle or vessel to ascertain whether the vehicle or vessel complies with this *Act* and the regulations ;

(h) entering any place where a motor , motor vehicle or beverage container regulated by or under this *Act* is stocked , displayed , sold or offered for sale to carry out his or her duties under Part III or VIII , as the case may be;

(i) entering any establishment for the repair of motors or motor vehicles, to carry out his or her duties under Part III;

(j) entering any ice shelter to carry out his or her duties under Part IV;

(k) entering any abandoned motor vehicle to carry out his or her duties under Part VI;

(l) entering any place where the provincial officer reasonably believes the permit and plates of a vehicle may be found in order to seize them in accordance with section 47a or 47b;

(m) where a pollutant as defined in Part IX is spilled and is likely to cause an adverse effect , entering any place for the purpose of carrying out any duty imposed or order or direction made or given under that Part;

(n) making necessary excavations;

(o) requiring that any thing be operated , used or set in motion under conditions specified by the provincial officer;

(p) taking samples;

(q) recording or copying any information by any method ;

(r) requiring the production of any document that is required to be kept under this *Act* or the regulations, and any other document that is related to the purposes of the inspection;

(s) upon giving a receipt therefor, removing from a place documents produced pursuant to a requirement under clause (r) for the purpose of making copies or extracts and promptly returning them to the person who produced them; and

(t) making reasonable inquiries of any person , orally or in writing.

Identification of provincial officers

(2) Upon request, a provincial officer who exercises a power set out in subsection (1) shall identify himself or herself as a provincial officer either by the production of a copy of his or her designation or in some other manner and shall explain the purpose of the inspection.

False information

184. No person shall knowingly give false information in any application, return or statement made to the Minister, a provincial officer or any employee of the Ministry in respect of any matter under this *Act* or the regulations. R.S,O. 1980, c. 141, s. 145.

General offence

186. (1) Every person who contravenes this *Act* or the regulations is guilty of an offence.

Duty of director or officer

194. (1) Every director or officer of a corporation that engages in an activity that may result in the discharge of a contaminant into the natural environment contrary to this *Act* or the regulations has a duty to take all reasonable care to prevent the corporation from causing or permitting such unlawful discharge. 1986, c. 68, s. 17, *part;* 1988, c. 54, s. 50.

Offence

(2) Every person who has a duty under subsection (1) and who fails to carry out that duty is guilty of an offence.

APPENDIX 3.

WHAT REQUIRES APPROVAL AND WHAT DOES NOT REQUIRE APPROVAL

The following sets out typical examples of what requires approval and what does not require approval. NOTE: This is not an exhaustive list of works requiring approval, but is intended only to provide illustrations. In addition, this list is subject to change as new legislation, including regulations, is enacted.

CONSTRUCTION (Section 9(1)(a))

Example #1 Construction of a new manufacturing, service, waste processing or disposal plant, if one or more contaminants are discharged into the natural environment.

All process and control equipment for a new plant can be covered under one certificate.

1.1 Approval required

1.1.1 a new car manufacturing plant;

1.1.2 a new power plant;

1.1.3 a new waste composting plant;

1.1.4 a new recycling plant for plastics;

1.1.5 a new regional facility for disposal of biomedical waste.

1.2 Approval not required

1.2.1 a new electrically heated warehouse used only for storage (no contaminants);

1.2.2 a new manufacturing facility where all comfort heat is provided by direct fired heaters and particulate emissions are controlled by baghouses which always discharge into the plant air (no discharge into the natural environment).

Example #2 Installation of a new piece of process, ventilation or pollution control equipment, including pilot plants, which may discharge one or more contaminants into the natural environment.

The certificate will cover only the newly installed equipment.

2.1 Approval required

2.1.1 a new paint spray booth with a vent into the atmosphere (discharge of volatile hydrocarbons, solvents);

2.1.2 a new baghouse to control emissions from an existing but previously uncontrolled grinder, with a vent into the atmosphere (discharge of particulate);

2.1.3 a new extruder at a plastic pipe manufacturing plant with a vent into the atmosphere (discharge of volatile organics);

2.1.4 pilot scale process equipment vented into the atmosphere, to be used intermittently for research purposes (various contaminants may be discharged, the *Act* does not exempt minor, infrequent or short term discharges);

2.1.5 a new laboratory fume hood complete with an activated carbon filter and a vent into the atmosphere (discharge resulting from chemical reactions or handling of chemicals);

2.1.6 a new roof exhauster in a plant where the general plant air is highly contaminated, such as a rendering plant (contaminants discharged with general plant air);

2.2 Approval not required

2.2.1 a new electric infrared heater to provide comfort heat (no contaminants);

2.2.2 a new direct gas fired heater to provide comfort heat, located inside a facility (no discharge into the natural environment);

2.2.3 a new baghouse with treated gases to be exhausted into the plant air (no discharge into the natural environment);

2.2.4 a new roof exhauster in a plant where the general plant air is not contaminated (no contaminants discharged with general ventilation air);

2.2.5 a continuous emission monitor (the monitor does not emit contaminants; a certificate for a process may, however, include continuous emission monitors, which are used to control and monitor the performance of the process);

2.2.6 a gas/vapour barrier around a landfill site which already has an approved gas collection system (barrier is expected to correct the manner of discharge of gaseous contaminants in such a way that they are discharged and controlled as originally intended and proposed in the application for the gas collection system)

ALTERATION

Example #3 Alteration of a plant, a piece of equipment or a stack, if the alteration may change the rate of discharge and/or the dispersion of one or more contaminants.

The certificate will cover only the alteration.

3.1 Approval required

3.1.1 removal of a portion of a building if the remaining portion includes stacks and/or vents that are less than twice the building height (building dimensions become smaller and therefore dispersion may be altered);

3.1.2 addition of openable windows and large access doors that may be kept open long periods of time at a facility where the general plant air is highly contaminated, such as a rendering plant (contaminants may be discharged through windows and doors);

3.1.3 relocation of stacks which are more than twice the building height (location of maximum ground level concentration is altered, plume may impinge on sensitive receptors);

3.1.4 relocation of stacks or vents which are less than twice the building height and are located in a hospital, nursing home, day care centre, apartment building or any other building with sensitive receptors (plume may impinge on sensitive receptors);

3.1.5 increase of stack height, if the new stack height is more than twice the height of the highest part of the building (plume may impinge on a sensitive receptor or dispersion may be altered);

3.1.6 decrease of stack height, if the original stack is more than twice the height of the highest part of the building (dispersion affected);

3.1.7 increase or decrease of stack height, if the stack is located in a hospital, nursing home, day care centre, apartment building or any other building with sensitive receptors (plume may impinge on sensitive receptors, dispersion may be altered);

3.1.8 ducting of emissions from an existing controlled or uncontrolled source into existing approved air pollution control equipment (total air flow, contaminant concentration and nature of contaminants into the control equipment may change, performance of pollution control equipment may change);

3.1.9 alteration of stack exit diameter, if the stack height is more than twice the building height (exit velocity and dispersion altered).

3.2 Approval not required

3.2.1 new doors or windows in a non-contaminated plant (general ventilation, aesthetics and access only);

3.2.2 relocation of process equipment or rerouting of ductwork within a plant, if the contaminant concentration, total air flow and stack are not altered (no change to contaminants, or rate or manner of discharge);

EXTENSION

Example #4 Extension of a plant, equipment etc., if the extension may increase the rate of discharge or change the dispersion characteristics of one or more contaminants.

The certificate will cover only the extension.

4.1 Approval required

4.1.1 addition of a second, third etc. storey to a building, if the original building includes stacks and the stack heights will be less than twice the height of the highest part of the altered building (dispersion may be altered);

4.1.2 addition of a lateral section to a building, if the stacks in the original building are more than twice the height of the highest part of the original building but less than twice the height of the highest part of the altered building (dispersion may be altered);

4.2 Approval not required

4.2.1 addition of a new lateral section to a building, if the stacks in the original building are more than twice the height of the highest part of the altered building (no or insignificant effect on dispersion);

REPLACEMENT

Example #5 Replacement of a plant, equipment etc., if the replacement can change the rate of discharge or the dispersion characteristics of one or more contaminants.

The certificate will cover only the replacement.

5.1 Approval required

5.1.1 replacement of filter bags in an approved baghouse, if the new filter bags are different from the original bags (rate of discharge may change);

5.1.2 replacement of a stack, if the original stack and associated source(s) of emissions have not been previously approved (the Ministry then assesses the environmental impact of unapproved facilities before the operational life of the unapproved facilities is extended);

5.1.3 replacement of a stack with a stack that has a different exit diameter and/or height from the originally approved stack (dispersion may be reduced or plume may impinge on a sensitive receptor).

5.2 Approval not required

5.2.1 replacement of a stack with an identical stack, if the original stack and associated source(s) of emissions have been previously approved (no effect on nature, rate or manner of discharge);

5.2.2 installation of a baghouse, if the original baghouse has been destroyed beyond repair and the new baghouse is the same as the original with respect to the filter bags, filtering velocity and cleaning method.

ALTERATION OF PROCESS (Section 9(1)(b))

Example #6 Alteration of a process or production rate, if the alteration can change the nature of emissions and/or rate of discharge of contaminants and/or dispersion of contaminants.

The certificate will cover only the alteration.

6.1 Approval required

6.1.1 increased use of raw materials, if the raw material usage is related to the rate of discharge of contaminants or volumetric flow rate through the stack (altered dispersion or rate of discharge);

6.1.2 increased production rate through addition of a night shift, if operations are noisy (rate of discharge of contaminants, including noise, will not change, however, the Model Municipal Noise Control By-Law sets different noise level limits for day time as compared to night; local municipalities may also have restrictions on operating times);

6.1.3 change of operating temperature or pressure (nature and rate of emissions may be altered due to chemical reactions or decomposition of the original contaminants discharged into the natural environment);

6.1.4 change of raw materials (nature of emissions may be altered);

6.1.5 a short term experiment (full scale or pilot scale) involving new raw materials, different operating conditions or temporary changes to pollution control equipment (nature and rate of discharge may be altered -- the *Act* does not exempt temporary operations or minor sources from the approval requirement);

6.2 Approval not required

6.2.1 Decrease in production rate if the original certificate specificly states that the approval is for a certain maximum production rate, ie. up to 100 tonnes per day or a maximum of 100 litres per hour (original approval was assessed for maximum contaminant emission rates based on a maximum production rate);

APPENDIX 4.

REVIEW OF APPLICATIONS

1 OVERVIEW OF PROPOSAL

The engineering staff will first review all information provided with the application, including raw material data, description of process equipment used, operating conditions in the process equipment and chemical reactions that may occur in the process equipment. The overview may reveal errors or omissions in the application and will also assist in obtaining a general understanding of the types of contaminants and sources of contaminants as well as specific regulations, policies and guidelines that have to be considered when carrying out a detailed review.

2 COMPLIANCE WITH POLICIES AND GUIDELINES

If an application is made for an incinerator, including a wood or waste derived fuel fired boiler, the design of the equipment and fuel characteristics must comply with specific Ministry requirements. Currently available policies and guidelines of the Ministry are listed in Appendix 6.

The proponents for any of the above facilities are strongly encouraged to consult the Approvals Branch at the pre-application stage, since the Ministry is currently revising Regulation 309 (general waste management) and developing a number of policy documents relating to incineration and combustion.

3 DETERMINATION OF CONTAMINANT EMISSION RATES

After the general review, the engineering staff will review whether or not the applicant has:

3.1 considered the potential continuous or intermittent emission sources, including the sources of fugitive emissions, such as stock piles, unpaved roads, open conveyors, conveyor transfer points, windows and doors; and

3.2 considered the potential contaminants from manufacturing processes, fugitive sources and combustion sources; and

3.3 reasonably estimated the emission rates for the contaminants discharged.

The following methods and resources may be used in the Ministry's review of emission rates from sources of contaminants:

3.3.1 physical/chemical data for contaminants (vapour pressure, density, molecular weight, solubility, evaporation rate);

3.3.2 technical data and control efficiency guarantees provided by manufacturers of air pollution control equipment;

3.3.3 engineering calculations in order to assess the removal efficiency of the proposed pollution control equipment;

3.3.4 stack testing data for similar operations, if:

3.3.4.1 processes use similar raw materials; and

3.3.4.2 process and control equipment are similar; and

3.3.4.3 process conditions are similar; and

3.3.4.4 test methodology is comparable to the methodology recommended by the Air Resources Branch of the Ministry; and

3.3.4.5 test methodology and process conditions are well documented.

3.3.5 Compilation of Air Pollutant Emission Factors, AP-42, U.S. Environmental Protection Agency;

3.3.6 Air Emissions Species Manual, U.S. Environmental Protection Agency;

3.3.7 Toxic Air Pollutant Emission Factors - A Compilation for Selected Air Toxic Compounds and Sources, U.S. Environmental Protection Agency;

3.3.8 VOC/PM Speciation database management system (SPECIATE/U.S. Environmental Protection Agency);

3.3.9 Crosswalk/Air Toxic Emission Factor database management system (XATEF, U.S. Environmental Protection Agency);

3.3.10 Air Pollution Engineering Manual, AP-40, Air & Waste Management Association, revised and updated in 1992;

3.3.11 mass balance calculations; and

3.3.12 engineering assessments for similar operations.

The review of an application for a certificate is always based on the most conservative estimates of contaminant discharges over a half-hour period. Therefore, the emission rates for determining compliance with the *Act*, regulations, policies and guidelines represent the emissions during the "worst case", when all sources[2], including intermittent sources, which can possibly be operated at the same time, are operating and generating emissions at the highest possible rate.

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[2] See Section 4.2.2 of this Appendix for further assistance.

4 DISPERSION CALCULATIONS

In order to determine the point of impingement concentration of a contaminant, dispersion will be examined in accordance with the formulae outlined in the Appendix to Regulation 308 under the *Act*.

4.1 SELECTION OF POINT OF IMPINGEMENT

"Point of Impingement" (POI) can be any point in the natural environment. The point of impingement for the purposes of assessing compliance with the *Act*, regulations and interim standards is generally chosen as the point at which the highest concentration of a contaminant emitted by a source is expected to occur.

Typical points of impingement are the property line, any ground level point outside the property line, a residence and all sensitive receptors, such as air intakes and openable windows. A point of impingement can be selected at any height above grade, ie. the roof of an apartment building.

At times a point of impingement may be located in the same building as the source of contaminant. For instance, if a source of contaminant, such as a boiler, heater or diesel generator, is proposed for a hospital, nursing home, school or an apartment building, all air intakes and openable windows in these facilities will be considered sensitive receptors and may be chosen as the point of impingement.

On the other hand, air intakes and openable windows in factories should be considered under the standards set out in the Occupational Health and Safety Act (OHSA). It is noted that the OHSA standards apply inside a work place, and are therefore enforced by the Ministry of Labour.

4.2 SELECTION OF DISPERSION FORMULA

It should be noted that the models included in Regulation 308 are not necessarily applied to all cases, ie. complex buildings, special atmospheric conditions, complex terrain, very short term releases ("puffs") etc. Therefore, other dispersion models may be used in consultation with the Air Resources Branch (see Section 12 of this document).

When one of the three models in Regulation 308 is applicable, it will be selected in accordance with the following:

4.2.1 Scorer & Barrett

The formula section 2. (a) of the Appendix to Regulation 308 is usually selected if the POI is located on the building or structure or is within 5 metres horizontally of the building or structure on which the point of emission is located, and

4.2.1.1 the height above grade at the point of emission is less than twice the height of the highest part of the building or structure on which the point of emission is located where the highest part of the building or structure is at a height of not more than twenty metres above grade,

4.2.1.2 the height of the highest part of the building or structure on which the point of emission is located is greater than twenty metres above grade and the point of emission is less than twenty metres above the highest part of the building or structure on which it is located, or

4.2.1.3 there is a building or structure upwind from the point of emission such that,

4.2.1.3.1 the height above grade of the building or structure is greater than the height above grade at the point of emission, and

4.2.1.3.2 the building or structure is a horizontal distance of 100 metres or less from the point of emission.

4.2.2 Virtual Source

The formula in section 2.(b) of the Appendix to Regulation 308 is ususally selected if the POI is a horizontal distance of five metres or more from the building or structure on which the point of emission is located, and

4.2.2.1 the height above grade at the point of emission is less than twice the height of the highest part of the building or structure on which the point of emission is located where the highest part of the building or structure is at a height of not more than twenty metres above grade,

4.2.2.2 the height of the highest part of the building or structure on which the point of emission is located is greater than twenty metres above grade and the point of emission is less than twenty metres above the highest part of the building or structure on which it is located, or

4.2.2.3 there is a building or structure upwind from the point of emission such that,

4.2.2.3.1 the height above grade of the building or structure is greater than the height above grade at the point of emission, and

4.2.2.3.2 the building or structure is a horizontal distance of 100 metres or less from the point of emission.

4.2.3 Point Source

The formula in section 2.(c) of the Appendix to Regulation 308 is usually selected if the point of emission is not affected by any of the conditions described in 4.2.1 or 4.2.2.

4.3 COMPLIANCE WITH STANDARDS AND INTERIM STANDARDS

4.3.1 NO EXISTING SOURCES OF THE CONTAMINANT(S)

If the site contains no existing other sources of any of the contaminants, which are emitted by the new or altered source, only the emissions from the new or altered source will be considered during the review of an application.

The calculated point of impingement concentration of each contaminant discharged from the new or altered source must be less than the standard or interim standard.

If there is no standard or interim standard, the Air Resources Branch will be requested to determine, based on available environmental, toxicological and health impact data, whether or not the emissions of the contaminant are likely to cause an adverse effect, if discharged at the proposed rate.

4.3.2 EXISTING SOURCES EMIT THE CONTAMINANT(S)

If the site contains one or more existing sources that emit one or more of the same contaminants as the new or altered source, the total emissions of the contaminants from all existing and new sources may have to be considered during the review of an application for a new or altered source.

The total emissions will be reviewed, if:

4.3.2.1 the contaminant has been identified as carcinogenic, toxic or otherwise hazardous; or

4.3.2.2 the contaminant is highly odorous (odour based standard less than 200 micrograms per cubic metre); or

4.3.2.3 the contaminant emission rate increases as a result of the proposal, and the point of impingement concentration of the contaminant, resulting from the additional emissions only, is more than 25 percent of the respective maximum allowable point of impingement concentration and there is more than one other source of the same contaminant.

"GUIDE FOR COMPLETING APPLICATIONS FOR CERTIFICATES OF APPROVAL (AIR), SECTION 9, ENVIRONMENTAL PROTECTION ACT, R.S.O. 1990" includes information on data required for overall emissions.

5 FUGITIVE EMISSIONS

Contaminant emission sources can be classified as point sources or fugitive sources. Vents and stacks are considered point sources, whereas all other sources are fugitive sources. Therefore, fugitive emissions include:

5.1 dust from on-site traffic;
5.2 dust from earth moving equipment;
5.3 dust from storage, handling and conveying of solids;
5.4 odorous and organic contaminants from wastewater treatment facilities and open sewers;
5.5 emissions from open process or storage vessels;
5.6 emissions through open doors and windows; and
5.7 odorous and organic emissions from leaky pipes, valves, pumps and compressors.

Review of applications for certificates does usually not include emissions which can be caused by poor maintenance (leaks) or emergency situations (ruptures, failures). The review will, however, include certain fugitive emissions, such as stock piles, unpaved roads, open conveyors, open storage vessels for volatile liquids etc.

Due to difficulties in quantifying fugitive emissions accurately, special precautions are always encouraged to minimize fugitive emissions to the extent that is practical. Flexible hoses and retractable loading spouts should be used to minimize the free fall of solids during loading. Access roads should be paved, and enclosures and pollution control equipment should be installed on screens, conveyors, loading areas, storage vessels and other sources of fugitive emissions.

When suspended particulate matter is the fugitive contaminant and the above measures are not practical, persons responsible will be required to use dust suppressants, such as water and calcium chloride. It is noted that waste oil must not be used as a dust suppressant (s. 5(4), O. Reg. 309).

6 SOUND AND VIBRATION

Assessment of a source of sound and/or vibration is carried out in accordance with the technical publications contained in the **Model Municipal Noise Control By-Law, Final Report, August 1978**, prepared by the Ministry of the Environment, and amended from time to time.

7 SURROUNDING LANDUSE

Review of all applications for certificates will include site-specific considerations, such as adjacent landuse. Special care will be taken when reviewing applications for operations and facilities close to residences, hospitals, nursing homes and day care centres. Also, existing poor air quality, discovered through ambient air monitoring and/or complaints from local residents or commercial/industrial operations, may necessitate a requirement for stringent controls on a new or altered facility in order to prevent further deterioration of air quality.

District Officers of the Ministry have a responsibility to address adverse effect complaints, such as odour, dust and noise. Therefore, when District Office staff become aware of an application for a certificate, they will forward comments to the Approvals Branch with respect to the existing air quality as well as the past environmental performance of the person responsible, if known. Any concerns will have to be addressed prior to recommendation for approval.

8 MATTERS NOT CONSIDERED

The review of applications for certificates will usually not include the following[3]:

8.1 assessment of the architectural, mechanical, structural, electrical or instrumentational components of the proposed plant, structure, equipment, apparatus, mechanism or thing, except to the extent necessary to review the environmental effect of the proposal;

8.2 adequacy of fresh air addition into and air changes within a facility;

8.3 assessment of quality of fresh air to be introduced into a facility;

8.4 assessment of indoor air quality, even if it may be affected by process or combustion equipment, which is part of the application for certificate;

8.5 suitability of construction materials used in process vessels and duct work;

8.6 potential for process equipment and duct work failures, although reliability of pollution control equipment and continuous monitoring equipment will be considered;[4]

8.7 compliance with standards and interim standards during emergency discharges due to equipment failures, except when the application is for alterations to an existing facility, which has a history of discharges due to poor operating or maintenance practices;

8.8 compliance with standards and interim standards during discharges through safety relief valves and vents;

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[3] Although the examples provided indicate what is not reviewed for purposes of s.9 of the Act, this does not relieve applicants of their duty to comply with requirements imposed upon them by other legislation, regulations, policies and guidelines.

[4] Person responsible must ensure that proper operating and maintenance procedures are in place to ensure that no adverse effects are caused by any failures.

8.9 adequacy of air flows to prevent operational problems in air pollution control equipment;

8.10 discharge of contaminants caused by construction activities.[5]

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[5] Person responsible must construct in accordance with section 11 of Regulation 308 under the Act and Technical Publications NPC-115 and NPC-119 of the Model Municipal Noise Control By-Law, any local by-law, all applicable codes of practice as well as good engineering principles, in order to minimize discharge of all contaminants during construction activities.

APPENDIX 5.

SELECTED REGULATIONS UNDER THE *Act*

Regulation 295	Air Contaminants from Ferrous Foundries
Regulation 296	Ambient Air Quality Criteria
Regulation 308	Air Pollution
Regulation 312	Sulphur Content in Fuels
Regulation 469/87	Asphalt Paving Plants
Regulation 660/85	Inco Sudbury Smelter Complex
Regulation 661/85	Falconbridge Smelter Complex
Regulation 662/85	Ontario Hydro
Regulation 663/85	Algoma Sinter Operation
Regulation 16/86	Boilers
Regulation 148/86	Mobile PCB Destruction Facilities
Regulation 684	Niagara Escarpment Planning and Development Act
Regulation 6/8/85	Spills
Regulation 51/81	Lambton Industrial Meterological Alert
Regulation 394/89	Ozone Depleting Substances
Regulation 518/90	Ozone Depleting Substances
Regulation 519/90	Ozone Depleting Substances
Regulation 476/91	Ozone Depleting Substances
Regulation 77/92	Ground Source Heat Pump

APPENDIX 6.

POLICIES

Policy 01-01	Combustion in Incinerators
Policy 01-03	Air Pollution Control on Incinerators
Policy 01-04	Operation of the Air Pollution Index and the Air Quality Index
Policy 01-05	Crematoria
Policy 05-01	Cement Industry Guidelines
Policy 05-02	Compliance

GUIDELINES

Interim Design and Review Guidelines for Wood Fired Combustors, Approvals Branch, August 30, 1990.

(Available from the Approvals Branch upon request)

APPENDIX 7.

MODEL MUNICIPAL NOISE CONTROL BY-LAW

TECHNICAL PUBLICATIONS

NPC-101 - Definitions

NPC-102 - Instrumentation

NPC-103 - Procedures

NPC-104 - Sound Level Adjustment

NPC-105 - Stationary Sources

NPC-106 - Sound Levels of Road Traffic

NPC-115 - Construction Equipment

NPC-116 - Residential Air Conditioners

NPC-117 - Domestic Outdoor Power Tools

NPC-118 - Motorized Conveyances

NPC-119 - Blasting

NPC-131 - Guidelines for Noise Control in Land-Use Planning

NPC-132 - Guidelines for Noise Control in Rural Areas

NPC-133 - Guidelines on Information Required For Assessment of Planned Stationary Sources of Sound

NPC-134 - Guidelines on Information Required for the Assessment of Planned New Land Uses With Respect to Sound and Vibration Impacts

NPC-135 - Certificate (of Competence in Environmental Acoustics Technology)

APPENDIX 8.

APPROVAL DOCUMENTS

1 CERTIFICATE OF APPROVAL

A certificate is printed on Ministry of the Environment letter head and has the words **"CERTIFICATE OF APPROVAL AIR" printed in the upper right hand corner.** It also has a certificate number, which has a format of 8-abbb-cc-dde, where

'a'	indicates the geographic region where the proposal is to be located (1 = southwestern, 2 = west central, 3 = central, 4 = southeastern, 5 = northeastern, 6 = northwestern);
'bbb'	is a unique number given for an application for a certificate and depends on how many other applications have been received for the same geographic region in the year that the particular application is received, ie. the first application received in the calendar year will be 001 for each of the six regions;
'cc'	indicates the year in which the application is received;
'dd'	is: '00' if the original certificate is issued in the same year as the application was received; or the last two digits of the calendar year in which the certificate is issued if the year of issuance is not the same as the year when the application was received.
'e'	is always 6 in the original certificate.

Example: Certificate No. 8-5123-90-916 means that an application for approval under Section 9 of the *Act* was received in 1990 for something which is located in the northeastern region of Ontario, the application was the 123rd application received in 1990 for the northeastern region, and the certificate was issued in 1991.

In addition to the number, a certificate of approval will also identify the owner/operator as well as the location of the approved equipment/process.

The rest of the certificate has the following parts:

1.1 description of the approved equipment, facilities, process, alteration etc. in sufficient detail so that a person who reads the certificate will easily understand what is approved (preamble);

1.2 conditions under a heading "TERMS AND CONDITIONS" (optional);

1.3 reasons for the conditions (if conditions included);

1.4 appeal instructions (if conditions included); and

1.5 the date and Director's signature.

2 AMENDED CERTIFICATE OF APPROVAL

An amended certificate of approval looks like the original certificate except that it has the words **"AMENDED CERTIFICATE OF APPROVAL" printed in the upper right hand corner.** An amended certificate also includes a sentence **"This certificate of approval revokes and replaces** ...".

The last three digits in the amended certificate will indicate the year of amendment (dd) and the revision number (e = 7 for the first revision, 8 for the second revision). For instance, certificate no. 8-5123-90-929, means that the previously noted certificate was revised for the third time in 1992. If dd = 00 the amendment was issued in the same year as the original certificate.

A certificate may be amended if there was an error on the original certificate, if there is a modification to or deletion of any of the approved equipment/processes, or if any of the conditions are revised.

An applicant may request a revision of a certificate by submitting a letter or a new Application for a Certificate of Approval (Air) to the Ministry. In both cases the submission must include sufficient information to assess the potential environmental impact of the revision.

It should be noted that the Director may also, at any time after a certificate has been issued, amend the certificate, as authorized by section 9(5) of the *Act*.

3 NOTICE OF AMENDMENT

A Notice of Amendment is also printed on Ministry of the Environment letter head, but has the words **"AMENDMENT TO CERTIFICATE OF APPROVAL" printed in the upper right hand corner and the words "NOTICE OF AMENDMENT" in the centre.** It carries the **same certificate number as the original certificate.**

A Notice of Amendment is an alternative to reissuing the entire certificate as an amended certificate, when a minor change is needed. A Notice of Amendment does not revoke and replace the original certificate. It may delete or alter parts of the original certificate, it may add equipment, processes and or conditions to the original approval. A Notice of Amendment is part of the original certificate.

A Notice of Amendment may be issued, if the applicant submits a request for an amendment or if the Director considers the amendment necessary.

APPENDIX 9.

INTERPRETATION OF CERTIFICATES AND GENERAL OBLIGATIONS

The following outlines general obligations of the owner and operator, general legal considerations affecting certificates as well as limitations of the application review by the Ministry.

1 SCOPE OF APPROVAL GRANTED

The approval granted by a certificate permits the applicant to proceed with the proposed establishment, alteration, extension or replacement of the equipment/facilities, subject to the conditions imposed in the certificate, and is based upon a review of the proposal in the context of its effect on the environment, its process performance and principles of good engineering practice.

2 REQUIREMENTS

The requirements of a certificate are imposed pursuant to Section 9. of the *Act*. The issuance of a certificate in no way abrogates the owner's legal obligations to take all reasonable steps to avoid violating other applicable provisions of the *Act* and other legislation and regulations.

3 INTERPRETATION (Severability and Conflicts)

3.1 The requirements of a certificate are severable. If any requirement of a certificate, or the application of any requirement of a certificate to any circumstance, is held invalid, the application of such requirement to other circumstances and the remainder of the certificate shall not be affected thereby.

3.2 In all matters requiring the interpretation and implementation of a certificate, the conditions of the certificate shall take precedence, followed in descending order by the owner's application and the documentation, referred to in the certificate, which is submitted in support of the application.

4 COMPLIANCE

The owner must ensure compliance with all the terms and conditions of a certificate at all times, notwithstanding the operational status of the equipment/facilities. Non-compliance constitutes a violation of the *Act* and is grounds for enforcement.

5 INFORMATION

5.1 The owner shall, forthwith upon the request of the Director, Regional Director, District Officer, any Ministry employee representing of the any of the above persons, a provincial officer, or any of them, furnish any information requested concerning compliance with, a certificate, including but not limited to any records required to be kept by this certificate.

5.2 In the event the owner provides to the Ministry information, records, documentation or notification in accordance with a certificate,

5.2.1 the receipt of said information by the Ministry;

5.2.2 the acceptance by the Ministry of the information; or

5.2.3 the failure of the Ministry to prosecute the owner, or to require the owner to take any action, under a certificate or any statute or regulation in relation to the said information;

shall not be construed as the approving, excusing or justifying by the Ministry of any act or omission of the owner relating to the said information, amounting to non-compliance with a certificate or any statute or regulation.

6 ENTRY AND INSPECTION

The owner shall allow Ministry personnel, or a Ministry authorized representative(s), upon presentation of credentials, to:

6.1 carry out any and all inspections authorized by section 156, 157 or 158 of the *Act*, section 10 of the *Ontario Water Resources Act* or section 19 or 20 of the *Pesticides Act*, as amended from time to time, of any place to which a certificate relates; and,

without restricting the generality of the foregoing, to:

6.2 enter at reasonable times upon the premises where the approved equipment/facilities are located, or the location where the records required by the conditions of a certificate are kept;

6.3 have access to and copy, at reasonable times, any records required by the conditions of a certificate;

6.4 inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations required by the conditions of a certificate; and

6.5 sample and monitor at reasonable times for the purposes of assuring compliance with the conditions of a certificate.

7 CHANGE OF OWNER

7.1 The owner shall notify the Director in writing of any of the following changes within 30 days of the change occurring:

- 7.1.1 change of owner or operating authority, or both;
- 7.1.2 change of address of owner or operating authority or address of new owner or operating authority;
- 7.1.3 change of partners where the owner or operating authority is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Partnerships Registration Act shall be included in the notification to the District Officer;
- 7.1.4 change of name of the corporation where the owner of operator is or at any time becomes a corporation, and a copy of the most current "Initial Notice or Notice of Change" (Form 1, 2 or 3 of O.Reg. 189, R.R.O. 1980, as amended from time to time), filed under the Corporations Information Act shall be included in the notification to the District Officer;

7.2 In the event of any change in ownership of the equipment/facilities, the owner shall notify in writing the succeeding owner of the existence of a certificate, and a copy of such notice shall be forwarded to the District Officer.

8 CONSTRUCTION CHANGES

8.1 The owner shall ensure that the equipment/facilities are (constructed, extended, changed) in accordance with a certificate, but nothing in a certificate shall prevent the owner from implementing changes in the construction/design of the equipment/facilities resulting from unforeseen construction problems provided the changes are not capable of producing an effect on the equipment/facilities.

8.2 The owner shall ensure that no changes in the construction/design of the equipment/facilities resulting from unforeseen construction problems capable of producing an effect on the equipment/facilities are made unless and until the owner applies for and receives the written authorization of the Director.

9 NOTIFICATION OF CHANGES IN PROCESSES OR MATERIALS

Once the equipment/facilities have been (constructed, altered, extended or replaced) in accordance with a certificate, the owner shall give written notice to the Director of any plans to further alter, extend or replace the equipment/facilities, and no such change shall be made unless and until the owner applies for and receives the written approval of the Director pursuant to Section 9 of the *Act*.

10 ADVERSE EFFECT

The owner shall take all reasonable steps to minimize any adverse effect resulting from non-compliance with any condition specified in a certificate including, but not limited to, such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge of a contaminant in respect of which there is non-compliance.

11 POWER FAILURE

Upon the reduction, loss or failure of the power source to the equipment/facilities, the owner shall, in order to maintain compliance with the *Act*, regulations and the performance conditions of a certificate, take all reasonable steps to control all discharges of contaminants from the equipment/facilities, including steps to control, reduce or halt production.

APPENDIX 10.

SUMMARY OF POINT OF IMPINGEMENT STANDARDS, AMBIENT AIR QUALITY CRITERIA (AAQCs), AND APPROVALS SCREENING LEVELS (ASLs)

SUMMARY of POINT OF IMPINGEMENT STANDARDS, AMBIENT AIR QUALITY CRITERIA (AAQCs), and APPROVALS SCREENING LEVELS (ASLs).

AIR RESOURCES BRANCH
ONTARIO MINISTRY OF THE ENVIRONMENT

August 1991

The attached listings reflect the changes and additions that have been made recently by the Air Resources Branch as part of a standard setting revision process which has been undertaken during the past year.

One of the changes is the reformatting of the package into a different table (ie. Table 1), which shows clearly the various averaging times (eg. Annual, 24 hour, 1 hour, 10 minutes) of the Ambient Air Quality Criteria (AAQC) and the limiting effects associated with the POI standards and the various AAQCs, respectively.

Another change is a simplification of the 'Status of Limit' designations for point of impingement. All 'guidelines', 'provisional guidelines', 'tentative standards', and 'interim standards' will be designated as *INTERIM STANDARDS (ie. 'IS' in 'Status' column of Table 1).* All 'standards' will be designated as *STANDARDS (ie. 'S' in 'Status' column of Table 1).* Thus, from now on, only these two designations will be used.

The third change, is the initiation of a new type of criterion which is referred to as an Approvals Screening Level (ASL). Specific features and uses of these ASLs are explained in the 'Preamble' to Table 2 which contains the 1/2-hour and 24-hour average ASL numbers. Their primary purpose is to allow the Ministry to deal with the large number of chemicals associated with the approvals process, without having to go through a very resource intensive process of setting air quality standards.

This listing will be issued from time to time as changes occur or as new AAQCs, Point of Impingement Standards or ASLs are developed or revised.

NOTES SPECIFIC TO TABLE 1:

* *In Ontario, the enabling legislation for the Point of Impingement Standards is Regulation 308 of the Environmental Protection Act. Regulation 308 should be consulted for application of the Point of Impingement Standards. Desirable Ambient Air Quality Criteria are defined by Regulation 296 under the Environmental Protection Act.*

* *When the 'Status' column is given as 'CARC' (ie. CARCINOGEN), it is implied that there is no assigned standard or interim standard. Further, emissions to the environment are to be prevented or limited to the greatest extent possible.*

* *D/F - The notation 'D/F' indicates that where polychlorinated dibenzodioxins (PCDD's) are emitted in mixtures with polychlorinated dibenzofurans (PCDF's), the following relationships must be satisfied:*

$$(A/450) + (B/22000) \leq 1 \qquad \text{AND} \qquad (C/30) + (D/1500) \leq 1$$

where A = *PCDD concentration in air for 1/2 hr averaging time*
B = *PCDF concentration in air for 1/2 hr averaging time*
C = *PCDD concentration in air for annual averaging time*
D = *PCDF concentration in air for annual averaging time*
and all of A, B, C and D are in units of pg/m^3 *(picograms per cubic metre).*

* *In the 'AAQC Limiting Effect' column (ie. Table 1) when entries are separated by a semi-colon (eg. odour;irritant;odour for the contaminant butanol, n-) then these apply consecutively to the numbers in that row (ie. to 770, 15000 and 3100 respectively); entries separated by '&' or a '/' generally apply to a single number which protects against both effects listed.*

* *All chlorofluorocarbons (CFC's) amended in the Environmental Protection Act are included with reference to Bill 218.*

of '

Table 1: Ambient Air Quality Criteria and Point of Impingement Limits for Air Contaminants.

Page: 1
Date: Aug-91

	Point of Impingement Standard				Ambient Air Quality Criteria (AAQC)				
Contaminant Name	Contaminant Code or CAS No.	Half Hour Point of Impingement Limit (ug/m3)	Point of Impingement Limiting Effect	Status	Annual (ug/m3)	24 Hour (ug/m3)	One Hour (ug/m3)	10 Minute (ug/m3)	AAQC Limiting Effect
Acetic acid	64-19-7	2500	Odour	S		2500			Odour
Acetone	67-64-1	48000	Odour	S		48000			Odour
Acetophenone	98-86-2	625	Odour	IS			1167	850	Health & Odour
Acetylene	74-86-2	56000	Odour	S		56000			Odour
Acrolein	107-02-8	28	Health	IS		23.5			Health
Acrylamide	79-06-1	45	Health	S		15			Health
Acrylonitrile	107-13-1	300	Health	IS		100			Health
Alkyltoluene sulphonamide, n-		100		IS		120			Particulate
Aluminum oxide	1344-28-1	100		IS		120			Particulate
Ammonia	7664-41-7	3600	Odour	S		3600			Odour
Ammonium chloride	12125-02-9	100		IS		120			Particulate
Amyl acetate, iso-	128-92-8					53200			Health & Odour
Amyl acetate, n-	628-63-7					53200			Health & Odour
Amyl acetate, secondary	626-38-0					66500			Health & Odour
Antimony and compounds	7440-36-0	75	Health	S		25			Health
Arsenic and compounds	7440-38-2	1	Health	IS		0.3			A Health
Arsine	7784-42-1	10	Health	S		5			Health
Asbestos (fibers > 5 um in length)	1332-21-4					0.04 fibers/cm3			Health
Asbestos (total)	1332-21-4	5	Health	IS					
Barium - total water soluble	7440-39-3	30	Health	IS		10			Health
Benzene	71-43-2			CARC					Health
Benzo(a)pyrene - single source	50-32-8	0.0033	Health	IS	0.00022	0.0011			Health
Benzo(a)pyrene, all sources	50-32-8				0.0003				Health
Benzothiazole	95-16-9	200	Health	IS		70			Health
Benzoyl chloride	98-88-4	350	Health	IS		125			Corrosion&Health
Beryllium and compounds	7440-41-7	0.03	Health	S		0.01			Health
Biphenyl	92-52-4	60	Odour	IS			60		Odour
Borax	1303-96-4	100	Health	IS		33			Health
Boric acid	10043-35-3	100	Health	IS		33			Health
Boron	7440-42-8	100		S		120			Particulate
Boron tribromide	10294-33-4	100	Corrosion	S		35			Corrosion
Boron trichloride	10294-34-5	100	Corrosion	S		35			Corrosion
Boron trifluoride	7637-07-2	5		S		2			Vegetation
Bromacil	314-40-9	30	Health	IS		10			Health
Bromine	7726-95-6	70	Health	S		20			Health
Bromochlorodifluoromethane (Halon 1211)		see	Bill 218-CFC's						Ozone depleting
Bromotrifluoromethane (Halon 1301)	75-63-8	see	Bill 218-CFC's						Ozone depleting
Butanol, iso-	78-83-1	1940	Odour	IS		655	15000	2640	Odour;Health;Odo
Butanol, n-	71-36-3	2278	Odour	IS		770	15000	3100	Odour;Irr;Odour
Butanol, tertiary	75-65-0			UD		30300			Health
Butanone, 2- (Methyl ethyl ketone)	78-93-3	31000	Odour	S			31000		Odour
Butyl acetate, n-	123-86-4	735	Odour	IS		248	15000	1000	Odour;Health;Odo
Butyl acrylate	141-32-2	100		IS		120			Particulate

TERMS:
@ 8 hour average for carbon monoxide based on high background levels from automobiles
* average monthly results for growing season
** average results of any single month
*** average of 2 consecutive months
GS -Growing Season May 1 - September 30 - NE & NW Regions
April 1 - September 30 - other regions
NM -Non-growing season October 1 - March 31

+ arithmetic mean ++ geometric mean
S = Air Quality Standard, IS= Interim Standard
CARC= Carcinogen, UD= Under Development, or odour threshold review.
Irr=Irritant
D/F= dioxins & furans, see notes preceeding Table 1.
A = AAQC chemicals listed in Regulation 296 under the Environmental Protection Act.

ARB:JN

Table 1: Ambient Air Quality Criteria and Point of Impingement Limits for Air Contaminants.

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Contaminant Name	Contaminant Code or CAS No.	Point of Impingement Standard: Half Hour Point of Impingement Limit (ug/m3)	Point of Impingement Standard: Point of Impingement Limiting Effect	Status	Ambient Air Quality Criteria (AAQC): Annual (ug/m3)	24 Hour (ug/m3)	One Hour (ug/m3)	10 Minute (ug/m3)	AAQC Limiting Effect
Butyl stearate	123-95-5	100		IS		120			Particulate
Cadmium and compounds	7440-43-9	5	Health	S		2			A Health
Calcium carbide	75-20-7	20	Corrosion	IS		10			Corrosion
Calcium cyanide (as total salt)	592-01-8	100		IS		120			Particulate
Calcium hydroxide	1305-62-0	27	Corrosion	S		13.5			Corrosion
Calcium oxide	1305-78-8	20	Corrosion	S		10			Corrosion
Captan	133-06-2	75	Health	IS		25			Health
Carbon black	1333-86-4	25	Soiling	S		10			Soiling
Carbon disulphide	75-15-0	330	Odour	S		330			Odour
Carbon monoxide	630-08-0	6000	Health	S		15700 (8 hour ave)	36200		A High automobile background level
Carbon tetrachloride	56-23-5	1800	Health	IS		600			Health
Chloramben	133-90-4	100		IS		120			Particulate
Chlordane	57-74-9	15	Health	IS		5			Health
Chlorinated dibenzo-p-dioxins (CDDs) ** D/F	PCDD	0.00045	Health	IS	0.00003				Health
Chlorine	7782-50-5	300	Health	S		150			Health&Vegetatio
Chlorine dioxide	10049-04-4	85	Health	S		30			Health
Chlorodifluoromethane (Freon 22)	75-45-6	1050000	Health	IS		350000			Health
Chloroform	67-66-3	1500	Health	IS		500			Health
Chloropentafluoroethane (CFC-115)	76-15-3	see	Bill 218-CFC's						Ozone depleting
Chromium - di-, tri- and hexavalent forms	7440-47-3	5	Health	IS		1.5			Health
Citric acid	77-92-9	100	Particulate	IS		120	300		Health&Particula
Coal tar pitch volatiles - soluble fraction	8007-45-2	3	Health	IS	0.2	1			Health
Cobalt	7440-48-4	0.3	Health	IS		0.1			Health
Copper	7440-50-8	100	Health	S		50			Health
Cresole	1319-77-3	230	Health	S		75			Health
Cyanogen chloride	506-77-4	15	Health	IS		12			Health
Cyclo sol 63	CYCLO SOL	25000	Health	IS		5000			Health
Cyclohexane	110-82-7	300000	Health	IS		100000			Health
Dalapon sodium salt	127-20-8	100	Health	IS		50			Health
Decaborane	17702-41-9	50	Health	S		25			Health
Decane, n-	124-18-5			UD			60000		Health & Odour
Decene, 1-	872-05-9	180000	Health	IS		60000			Health
Detergent enzyme (Subtilisin)	1395-21-7	0.2	Health	IS		0.06			Health
Diacetone alcohol	123-42-2	990	Odour	IS		335		1350	Odour
Diazinon	333-41-5	9	Health	IS		3			Health
Diborane	19287-45-7	20	Health	S		10			Health
Dibromotetrafluoroethane (Halon 2402)	124-73-2	see	Bill 218-CFC's						Ozone depleting
Dibutyl amine	111-92-2			UD			2645		Health & Odour
Dibutyl phthalate (DBP)	84-74-2	100	Health	IS		50			Health
Dibutyltin dilaurate	77-58-7	100	Health	IS		30			Health
Dicapryl phthalate	131-15-7	100		S		120			Particulate
Dichloro-1,1,2,2,-tetrafluoro ethane, 1,1-(Freon 114)	1320-37-2	2100000	Health	IS		700000			Health

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ARB:JH

Table 1: Ambient Air Quality Criteria and Point of Impingement Limits for Air Contaminants.

Contaminant Name	Contaminant Code or CAS No.	Point of Impingement Standard Half Hour Point of Impingement Limit (ug/m3)	Point of Impingement Standard Point of Impingement Limiting Effect	Status	Ambient Air Quality Criteria (AAQC) Annual (ug/m3)	Ambient Air Quality Criteria (AAQC) 24 Hour (ug/m3)	Ambient Air Quality Criteria (AAQC) One Hour (ug/m3)	Ambient Air Quality Criteria (AAQC) 10 Minute (ug/m3)	AAQC Limiting Effect
Dichlorobenzene, ortho-	95-50-1	37000	Health	IS			30500		Health
Dichlorobenzidene, 3,3-	91-94-1			CARC					Health
Diethyl amine	109-89-7			UD			2910		Health & Odour
Diethyl phthalate (DEP)	84-66-2	100	Health	IS		125			Health
Diethylene glycol monobutyl ether	112-34-5					65			Health
Diethylene glycol monobutyl ether acetate	124-17-4					85			Health
Diethylene glycol monoethyl ether	111-90-0	800	Odour	IS		273		1100	Odour
Diethylene glycol monoethyl ether acetate	112-12-5					1800			Health
Diethylhexyl phthalate (DEHP)	117-81-7	100	Health	IS		50			Health
Difluorodichloromethane (Freon 12)	75-71-8	1500000	Health	IS		500000	see Bill 218-CFC's		Health
Dihexyl phthalate (DHP)	84-75-3	100	Health	IS		50			Health
Diisobutyl ketone	108-83-8	470	Odour	IS		3500		649	Health;Odour
Dimethyl acetamide, n,n-	127-19-5	900	Health	IS		300			Health
Dimethyl amine	124-40-3			UD			1840		Health & Odour
Dimethyl disulphide	624-92-0	40	Odour	S			40		Odour
Dimethyl ether	115-10-6	2100	Odour	IS		2100			Odour
Dimethyl methylphosphonate	756-79-6					875			Health
Dimethyl phthalate (DMP)	131-11-3	100	Health	IS		125			Health
Dimethyl sulphide	75-18-3	30	Odour	S			30		Odour
Dimethyl-1,3-diamino propane, n,n-	109-55-7	60	Health	IS		20			Health
Dioctyl phthalate	117-84-0	100	Health	S		120			Particulate
Dioxane	123-91-1			UD		3500			Health
Dioxolane-1,3	646-06-0	30	Health	IS		10			Health
Diphenylamine	122-39-4	50	Health	IS		17.5			Health
Diquat dibromide - respirable	85-00-7	0.096	Health	IS		0.032			Health
Diquat dibromide - total in ambient air	85-00-7	0.48	Health	IS		0.16			Health
Dodecyl benzene sulphonic acid	1886-81-3	100		IS		120			Particulate
Dodine	24391-00-3	30	Health	IS		10			Health
Droperidol	548-73-2	3	Health	IS		1			Health
Dustfall		8000 (ug/m2)	Soiling	S	4.6 g/m2 + (annual)	7 g/m2 (30 day)			A Soiling
Ethanol (Ethyl alcohol)	64-17-5	19000	Odour	IS			19000		Odour
Ethyl acetate	141-78-6	19000	Odour	S			19000		Odour
Ethyl acrylate	140-88-5	4.5	Odour	S			4.5		Odour
Ethyl benzene	100-41-4	4000	Odour	S			4000		Odour
Ethyl ether	60-29-7	30000	Odour	IS		30000			Odour & Health
Ethyl hexanol, 2-	104-76-7	600	Odour	IS			600		Odour
Ethyl-3-ethoxy propionate	763-69-9	147	Odour	IS		50		200	Odour
Ethylanthraquinone, 2-	84-51-5	30	Health	IS		10			Health
Ethylene	74-85-1	160		IS		40			Vegetation
Ethylene dichloride	107-06-2	1200	Health	IS		400			Health
Ethylene glycol	107-21-1					12700			Health
Ethylene glycol butyl ether (Butyl cellosolve)	111-76-2	350	Odour	IS		2400		500	Health;Odour

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		Point of Impingement Standard			Ambient Air Quality Criteria (AAQC)					
Contaminant Name	Contaminant Code or CAS No.	Half Hour Point of Impingement Limit (ug/m3)	Point of Impingement Limiting Effect	Status	Annual (ug/m3)	24 Hour (ug/m3)	One Hour (ug/m3)	10 Minute (ug/m3)		AAQC Limiting Effect
Ethylene glycol butyl ether acetate (Butyl cello.ace)	112-07-2	500	Odour	IS		3750		700		Health;Odour
Ethylene glycol dinitrate	628-96-6	10	Health	IS		3				Health
Ethylene glycol ethyl ether (Cellosolve)	110-80-5	800	Odour	IS		380		1100		Health;Odour
Ethylene glycol ethyl ether acetate (Cellosolve ace.)	111-15-9	220	Odour	IS		540		300		Health;Odour
Ethylene glycol monohexyl ether	112-25-4					2500				Health
Ethylene oxide	75-21-8	15	Health	IS		5				Health
Ethylenediaminetetra acetic acid	60-00-4	100		IS		120				Particulate
Fentanyl citrate	990-73-8	0.06	Health	IS		0.02				Health
Ferric oxide	1309-37-1	75	Soiling	S		25				Soiling
Fluoridation - as total fluorides, total GS	7664-39-3				40 ug/100 cm2 /30 day				A	Vegetation
Fluoridation - as total fluorides, total NM	7664-39-3				80 ug/100 cm2 /30 day				A	Vegetation
Fluorides (as HF) - gaseous - growing season GS	7664-39-3				0.34 ug/m3/30 day					Vegetation
Fluorides (as HF) - gaseous - growing season GS	7664-39-3	4.3	Vegetation	IS		0.86			A	Vegetation
Fluorides (as HF) - total, growing season GS	7664-39-3	8.6	Vegetation	IS		1.72			A	Vegetation
Fluorides (as HF) - total, growing season GS	7664-39-3				0.69 ug/m3/30 day				A	Vegetation
Fluorides (as HF) - total, non-growing season NM	7664-39-3	17.2	Vegetation	IS		3.44			A	Vegetation
Fluorides (as HF) - total, non-growing season NM	7664-39-3				1.38 ug/m3 / 30 day				A	Vegetation
Fluorides in dry forage-dry weight	7664-39-3				35 ppm/30 day ave.*				A	Effects on Animals
					80 ppm/30 day ave.**				A	Effects on Animals
					60 ppm/60 day ave.***				A	Effects on Animals
Fluorinert 3M-FC-70	FLUORINERT	100		IS		120				Particulate
Fluorotrichloromethane (CFC-11)	75-69-4	see	Bill 218-CFC's							Ozone depleting
Formaldehyde	50-00-0	65	Odour	S			65			Odour
Formic acid	64-18-6	1500	Health	S		500				Health
Furfural	98-01-1	1000	Odour	S			1000			Odour
Furfuryl alcohol	98-00-0	3000	Health	S		1000				Health
Gasoline	8006-61-9			UD						Odour
Glutaraldehyde	111-30-8	42	Health	IS		14	35			Health
Haloperidol	52-86-8	0.3	Health	IS		0.1				Health
Hexachlorocyclopentadiene	77-47-4	6	Health	IS		2				Health
Hexamethyl disilazane	999-97-3	5	Health	IS		2				Health
Hexamethylene diisocyanate monomer	822-06-0	1.5	Health	IS		0.5				Health
Hexamethylene diisocyanate trimer	4035-89-6	3	Health	IS		1				Health
Hexane	110-54-3	35000	Health	IS		12000				Health
Hexylene glycol	107-41-5	14400	Health	IS			12000			Health & Irrit.
Hydrogen bromide	10035-10-6	800	Health	IS			668			Health
Hydrogen chloride	7647-01-0	100	Corrosion	S		40				Corrosion
Hydrogen cyanide	74-90-8	1150	Health	S		575				Health
Hydrogen peroxide	7722-84-1	90	Health	IS		30				Health
Hydrogen sulphide	7783-06-4	30	Odour	S			30		A	Odour

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ARB:JN

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Contaminant Name	Contaminant Code or CAS No.	Point of Impingement Standard Half Hour Point of Impingement Limit (ug/m3)	Point of Impingement Limiting Effect	Status	Ambient Air Quality Criteria (AAQC) Annual (ug/m3)	24 Hour (ug/m3)	One Hour (ug/m3)	10 Minute (ug/m3)		AAQC Limiting Effect
Iron - metallic	15438-31-0	10	Soiling	S		4				Soiling
Isobutyl acetate	110-19-0	1220	Odour	IS		412		1660		Odour;Odour
Isopropyl acetate	108-21-4	1470	Odour	IS		500		2000		Odour;Odour
Isopropyl benzene	98-82-8	100	Odour	IS			100			Odour
Lead	7439-92-1	10	Health	S						
					3 ug/m3 / 30 day +					Health
					2 ug/m3 / 30 day++				A	Health
Lead - single sample	7439-92-1					5			A	Health
Lead in dustfall	7439-92-1				0.1 g/m2 / 30 day					Health
Lindane (Hexachlorocyclohexane)	58-89-9	15	Health	IS		5				Health
Lithium - other than hydrides	7439-93-2	60	Health	S		20				Health
Lithium hydrides	7580-67-8	7.5	Health	S		2.5				Health
Magnesium oxide	1309-48-4	100		S		120				Particulate
Malathion	121-75-5	100		IS		120				Particulate
Maleic anhydride	108-31-6	100	Health	IS		30				Health
Manganese compounds (as Mn) - including permanganates	7439-96-5	7.5	Health	IS		2.5				Health
Mercaptans (as Methyl mercaptan) - total	74-93-1	20	Odour	S			20		A	Odour
Mercaptobenzothiazole disulphide	120-78-5	100		IS		120				Particulate
Mercury	7439-97-6	5	Health	S		2			A	Health
Mercury (as Hg) - alkyl compounds	7439-97-6	1.5	Health	S		0.5				Health
Metaldehyde (Acetaldehyde tetramer)	108-62-3	100		IS		120				Particulate
Methacrylic acid	79-41-4	2000	Odour	IS		2000				Odour
Methane diphenyl diisocyanate	101-68-8	3	Health	IS		1				Health
Methanol (Methyl alcohol, Wood alcohol)	67-56-1	84000	Health	S		28000				Health
Methoxychlor	72-43-5	100		IS		120				Particulate
Methyl acrylate	96-33-3	4	Odour	S			4			Odour
Methyl bromide	74-83-9	4000	Health	IS		1350				Health
Methyl chloride	74-87-3	20000	Health	IS		7000				Health
Methyl ethyl ketone (2-Butanone)	78-93-3	31000	Odour	S			31000			Odour
Methyl ethyl ketone peroxide	1338-23-4	250	Health	IS		80	200			Health;Health
Methyl isobutyl ketone	108-10-1	1200	Odour	IS		1200				Odour
Methyl mercapto aniline	2987-53-3			UD						Odour
Methyl methacrylate	80-62-6	860	Odour	S		860				Odour
Methyl salicylate	119-36-8	300	Health	IS		100				Health
Methyl styrene, alpha	98-83-9			UD			24000			Health
Methyl-2-hexanone, 5-	110-12-3	460	Odour	IS		160		630		Odour
Methyl-2-pyrrolidone, n-	872-50-4						40000			Health
Methyl-n-amyl ketone	110-43-0			UD		4600				Health
Methylal	109-87-5	18000	Health	IS		6200				Health
Methylcyclopentadienyl manganese tricarbonyl (MMT)	12108-13-3	30	Health	IS		10				Health
Methylene chloride	75-09-2	5300	Health	IS		1765				Health
Methylene dianiline	101-77-9	30	Health	IS		10				Health
Methylene-bis-2-chloroaniline, 4,4-	101-14-4	30	Health	IS		10				Health

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Table 1: Ambient Air Quality Criteria and Point of Impingement Limits for Air Contaminants.

Contaminant Name	Contaminant Code or CAS No.	Point of Impingement Standard: Half Hour Point of Impingement Limit (ug/m3)	Point of Impingement Standard: Point of Impingement Limiting Effect	Status	Ambient Air Quality Criteria (AAQC): Annual (ug/m3)	Ambient Air Quality Criteria (AAQC): 24 Hour (ug/m3)	Ambient Air Quality Criteria (AAQC): One Hour (ug/m3)	Ambient Air Quality Criteria (AAQC): 10 Minute (ug/m3)		AAQC Limiting Effect
Miconazole nitrate	22832-87-7	15	Health	IS		5				Health
Milk powder	MILK POWDER	20	Soiling	S		20				Soiling & Odour
Mineral Spirits		30,000	Odour	IS		10,000				Health
Molybdenum	7439-98-7	100		IS		120				Particulate
Monochlorobenzene	108-90-7	4200	Health	IS			3500	4500		Health;Odour
Monomethyl amine	74-89-5	25	Odour	S		25				Odour
Naphthalene	91-20-3	36	Odour	IS		22.5		50		Health;Odour
Naphthol, alpha-	90-15-3	100	Health	IS		100				Health
Nickel	7440-02-0	5	Vegetation	S		2			A	Vegetation
Nickel carbonyl	13463-39-3	1.5	Health	S		0.5				Health
Nitric acid	7697-37-2	100	Corrosion	S		35				Corrosion
Nitrilotriacetic acid	18662-53-8	100		S		120				Particulate
Nitrogen oxides (as Nitrogen dioxide)	10102-44-0	500	Health	S		200	400		A	Health;Health
Nitroglycerin	55-63-0	10	Health	IS		3				Health
Nitrosodiethylamine, n-	55-18-5			CARC						Health
Nitrosodimethylamine, n-	62-75-9			CARC						Health
Nitrous oxide	10024-97-2	27000	Health	IS		9000				Health
Octane	111-65-9	45400	Odour	IS		15300		61800		Odour;Odour
Octene, 1-	25377-83-7	150000	Health	IS		50000				Health
Oleic acid	112-80-1	6	Health	IS			5			Health
Oxalic acid	144-62-7	75	Health	IS		25				Health
Ozone	10028-15-6	200	Health	S			165		A	Health&Vegetatio
Palladium - water soluble compounds	7657-10-1	30	Health	IS		10				Health
Paraquat dichloride - respirable	1910-42-5	0.009	Health	IS		0.003				Health
Paraquat dichloride - total in ambient air	1910-42-5	0.045	Health	IS		0.015				Health
Penicillin	1406-05-9	0.3	Health	IS		0.1				Health
Pentaborane	19624-22-7	3	Health	S		1				Health
Pentachlorophenol	87-86-5	60	Health	IS		20				Health
Perchloroethylene	127-18-4	10000	Health	IS		4000				Health
Phenol	108-95-2	100	Health	S		100				Health
Phosgene	75-44-5	130	Health	S		45				Health
Phosphine	7803-51-2	30	Health	IS		10				Health
Phosphoric acid (as P205)	7664-38-2	100		S		120				Particulate
Phosphorus oxychloride	10025-87-3	40	Health	IS		12				Health
Phosphorus pentachloride	10026-13-8	30	Health	IS		10				Health
Phthalic anhydride	85-44-9	100		S		120				Particulate
Pimozide	2062-78-4	3	Health	IS		1				Health
Platinum - water soluble compounds	7440-06-4	0.6	Health	IS		0.2				Health
Polybutene-1-sulphone		100		IS		120				Particulate
Polychlorinated biphenyls (PCBs)	1336-36-3	0.45	Health	IS	0.035	0.15				Health
Polychloroprene	25267-15-6	100		IS		500				Particulate
Potassium cyanide	151-50-8	100		IS		120				Particulate
Potassium hydroxide	1310-58-3	28	Corrosion	IS		14				Corrosion

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	Point of Impingement Standard				Ambient Air Quality Criteria (AAQC)				
Contaminant Name	Contaminant Code or CAS No.	Half Hour Point of Impingement Limit (ug/m3)	Point of Impingement Limiting Effect	Status	Annual (ug/m3)	24 Hour (ug/m3)	One Hour (ug/m3)	10 Minute (ug/m3)	AAQC Limiting Effect
Potassium nitrate	7757-79-1	100		IS		120			Particulate
Propanol, iso- (isopropyl alcohol, isopropanol)	67-63-0	24000	Odour	IS		24000			Odour
Propanol, n- (Propyl alcohol)	71-23-8	48000	Health	IS		16000			Health
Propionaldehyde	123-38-6	7	Odour	IS		2.5		10	Odour;Odour
Propionic acid	79-09-4	100	Odour	IS			100		Odour;Odour
Propionic anhydride (as Propionic acid)	123-62-6	100	Odour	IS			100		Odour
Propylene dichloride	78-87-5	2400	Odour	S		2400			Odour
Propylene glycol	57-55-6	100	Health	IS		120			Health
Propylene glycol methyl ether	107-98-2	89000	Odour	IS		30000		121000	Odour;Odour
Propylene glycol monomethyl ether acetate	108-65-6	5000	Odour	IS		5000			Odour
Propylene oxide	75-56-9	13500	Health	IS		4500			Health
Pyridine	110-86-1	60	Odour	IS		150		80	Health;Odour
Selenium	7782-49-2	20	Health	IS		10			Health
Silane	7803-62-5	450	Health	IS		150			Health
Silica - respirable, under 10 um aerodynamic diameter	7631-86-9	15	Health	IS		5			Health
Silver	7440-22-4	3	Health	S		1			Health
Sodium bisulphite	7631-90-5	100		IS		120			Particulate
Sodium chlorate	7775-09-9	18	Health	IS		6			Health
Sodium chlorite	7758-19-2	60	Health	IS		20			Health
Sodium cyanide	143-33-9	100		IS		120			Particulate
Sodium hydroxide	1310-73-2	20	Corrosion	IS		10			Corrosion
Stannous chloride (as Sn)	7772-99-8	30	Health	IS		10			Health
Strontium	7440-24-6	100		IS		120			Particulate
Strontium carbonate	1633-05-2	100		IS		120			Particulate
Strontium hydroxide	18480-07-4	100		IS		120			Particulate
Strontium oxide	1314-11-0	100		IS		120			Particulate
Styrene	100-42-5	400	Odour	S		400			Odour
Sulphamic acid	5329-14-6	100		IS		120			Particulate
Sulphur dioxide	7446-09-5	830	Health	S	55 +	275	690		A Health&Vegetatio
Sulphur hexafluoride	2551-62-4	1800000	Health	IS		600000			Health
Sulphuric acid	7664-93-9	100	Corrosion	S		35			Corrosion
Suspended particulate matter - under 44 um aero. diam	TSP	100	Visibility	S	60 ++	120			A Visibility
Talc - fibrous	14807-96-6	5	Health	IS		2			Health
Tellurium - excluding hydrogen telluride	13494-80-9	30	Health	S		10			Health
Tetrabutylurea	4559-86-8	30	Health	IS		10			Health
Tetrahydrofuran	109-99-9	93000	Odour	S		93000			Odour
Tetramethyl thiuram disulphide	137-26-8	30	Health	IS		10			Health
Thiourea	62-56-6	60	Health	IS		20			Health
Tin	7440-31-5	30	Health	S		10			Health
Titanium	7440-32-6	100		S		120			Particulate
Tolmetin sodium	35711-34-3	15	Health	IS		5			Health
Toluene	108-88-3	2000	Odour	S		2000			Odour
Toluene diisocyanate	584-84-9	1	Health	S		0.5			Health

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April 1 - September 30 - other regions
NM -Non-growing season October 1 - March 31

+ arithmetic mean ++ geometric mean
S = Air Quality Standard, IS= Interim Standard
CARC= Carcinogen, UD= Under Development, or odour threshold review.
Irr=irritant
D/F= dioxins & furans, see notes preceeding Table 1.
A = AAQC chemicals listed in Regulation 296 under the Environmental Protection Act.

ARB:JN

Table 1: Ambient Air Quality Criteria and Point of Impingement Limits for Air Contaminants.

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Contaminant Name	Point of Impingement Standard				Ambient Air Quality Criteria (AAQC)				
	Contaminant Code or CAS No.	Half Hour Point of Impingement Limit (ug/m3)	Point of Impingement Limiting Effect	Status	Annual (ug/m3)	24 Hour (ug/m3)	One Hour (ug/m3)	10 Minute (ug/m3)	AAQC Limiting Effect
Total reduced sulphur (as Hydrogen sulphide)	TRS	40	Odour	IS			40		Odour
Trichlorobenzene, 1,2,4-	120-82-1	100		IS		400			Irr;Health
Trichloroethane, 1,1,1- (Methyl chloroform)	71-55-6	350000	Health	S		115000			Health
Trichloroethylene	79-01-6	85000	Health	S		28000			Health
Trichlorofluoromethane	75-69-4	18000	Health	IS		6000			Health
Trichlorotrifluoroethane (CFC-113)	76-13-1	see	Bill 218-CFC's						Ozone depleting
Trifluorotrichloroethane	76-13-1	2400000	Health	S		800000			Health
Trimethyl amine	75-50-3	0.5	Odour	IS			0.5		Odour
Trimethylbenzene, 1,2,4-	95-63-6	500	Odour	IS		1000			Odour & Health
Trimethylol propane	77-99-6	100	Health	IS		1250			Health
Tripropyltin methacrylate		3	Health	IS		1			Health
Vanadium	7440-62-2	5	Health	S		2		A	Health
Vinyl chloride	75-01-4	3	Health	IS	0.2	1			Health
Vinylidene chloride (1,1-Dichloroethene)	75-35-4	70	Health	IS		35			Health
Warfarin	81-81-2	30	Health	IS		10			Health
Whey powder	WHEY POWDER	100		IS		120			Particulate
Xylenes	1330-20-7	2300	Odour	S		2300			Odour
Zinc	7440-66-6	100		S		120			Particulate
Zinc chloride	7646-85-7	12	Health	IS		10			Health

TERMS:

a 8 hour average for carbon monoxide based on high background levels from automobiles
* average monthly results for growing season
** average results of any single month
*** average of 2 consecutive months
GS -Growing Season May 1 - September 30 - NE & NW Regions
April 1 - September 30 - other regions
NN -Non-growing season October 1 - March 31

+ arithmetic mean ++ geometric mean
S = Air Quality Standard, IS= Interim Standard
CARC= Carcinogen, UD= Under Development, or odour threshold review.
Irr=irritant
D/F= dioxins & furans, see notes preceeding Table 1.
A = AAQC chemicals listed in Regulation 296 under the Environmental Protection Act.

ARB:JH

TABLE 2: LIST OF APPROVAL SCREENING LEVEL (ASL) CONTAMINANTS WITH ONE HALF HOUR AND 24 HOUR AVERAGING TIMES

APPROVALS SCREENING LEVEL FOR THE PROTECTION OF THE ENVIRONMENT AND HUMAN HEALTH

PREAMBLE:

The necessity of developing air quality standards for agents which are released into the environment is well accepted. Due to the fact that standards exist for only a small select group of agents , the use of "Approvals Screening Levels" is viewed as a means of protecting the environment and its inhabitants when standards are currently not available. The features and uses of these "Approvals Screening Levels" (ASLs) are the following:

(1) The specific use of these "Approvals Screening Levels" is for judging the acceptability of model predicted ground level concentrations (GLCs) associated with Certificate-of-Approval applications.

(2) It is imperative to note that the "Approvals Screening Level" is a value derived from a very cursory consideration of available data on human and animal toxicity, mutagenicity, reproductive and other scientific parameters. Its derivation also takes into account occupational health and ambient air quality guidelines derived in other countries, as well as, individual odour threshold values. Key environmental effects/behaviour parameters may also be considered.

(3) The "Approvals Screening Level" value, because it is derived from a process which is not fully rigorous, is subject to more frequent re-assessment; a time limit of 5 years is foreseen for periodic review of forthcoming data.

Contaminant Name	Contaminant Code or CAS No.	HALF HOUR ASL (ug/m3)	BASIS OF EFFECT HALF HOUR	24 HOUR ASL (ug/m3)	BASIS OF EFFECT (24 HOUR)	Status *
Adipic acid	124-04-9	3500	Health	1167	Health	ASL
Allyl glycidyl ether	106-92-3	180	Health	60	Health	ASL
Benzyl alcohol	100-51-6	2640	Health	880	Health	ASL
Bromoform	75-25-2	165	Health	55	Health	ASL
1-butoxy-2-propanol	5131-66-8	9900	Health	3300	Health	ASL
Diethylene glycol monomethyl ether	111-77-3	800	Odour	1200	Health	ASL
Dimethyl sulfoxide	67-68-5	6300	Health	2100	Health	ASL
Isopropyl ether	108-20-3	220	Odour	110000	Health	ASL
Methylene iodide	75-11-6	195	Health	65	Health	ASL
2-methoxy-1-propyl acetate	70657-70-4	4600	Health	1530	Health	ASL
Oxo-heptyl acetate	90438-97-2	255	Odour	85	Health	ASL
Oxo-hexyl acetate	88230-35-7	255	Odour	85	Health	ASL

* Does not imply a standard will be set.